Textile World

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SPUN-LO
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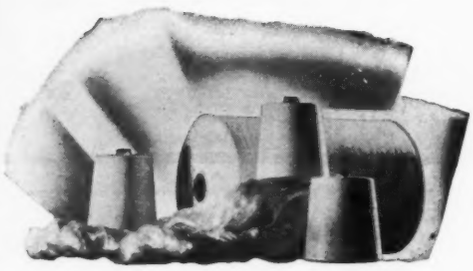
Dependable Yarns

AND KNITTED FABRICS



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INDUSTRIAL RAYON CORP.

9801 Walford Ave., Cleveland, Ohio

Textile World

August, 1935

Editor: DOUGLAS G. WOOLF

GOOD IN SMALL DOSES

AS one who supported the NRA principle of shorter hours and higher wages as a "way out," we recognize a definite challenge in the "platform" presented to industry by Robert Wood Johnson, president of Johnson & Johnson.

He certainly puts it up to the NRA school of thought. What he recommends is a larger dose of the same.

NRA, he feels, was a "colossal effort in the right direction." One of the reasons for its failure, he says, was that it did not go far enough; the 40-hr. week and the 35c. minimum hourly wage "obviously failed to do the job."

Consequently he urges a work-day "short enough to re-employ those who are unable to find work," and minimum wages "high enough for the people to buy what they produce."

■

This inference that you can carry the NRA principle to practically an unlimited degree, with recovery results in direct proportion, is an appealing one. We wish it were correct. We do not believe it is.

Its error lies in the fact that it ignores the competitive factor. If a person just *had* to buy a certain amount of cotton goods every year, for example, that would be something else again. But, believe it or not, there is still no law to that effect. And a nominally high wage and low work-week are of no help to textile workers or to the country if goods produced on that basis cannot be sold.

Obviously, there is nothing mystic about the figure 40 which makes it just the right number of hours per work-week. We can't guarantee that it's better than 38 or 42. However, it was arrived at after the most painstaking study, and after all groups had been given a chance for public hearing. Subsequently, when it proved too much, temporarily, curtailment programs were resorted to.

Now, instead of shutting down 25% of the equipment, should the industry have shortened its work-week to 30 hours, with the same weekly wage as previously paid for 40 hours? That is the real problem.

■

The answer, it seems, lies in the question itself. Decreased sales had necessitated the curtailment; the idea that increased costs and consequently increased selling-prices are the way to stimulate sales in a case like that, just doesn't make sense.

About all that can be done, then, is to set the work-week and the minimum wage at levels that will still permit the products concerned to move freely into trade, holding their own against competitive products. Carrying the process beyond that point may look nice in a printed code, or in a record of nominal social progress, but it won't be felt in the pay-envelope or in retail sales.

Furthermore, we do not believe NRA "failed," as Mr. Johnson puts it. At least, we don't think it failed in textiles. That the industry at large feels the same way about it is indicated by the heroic—and thus far successful—efforts made to preserve code labor provisions after the NRA decision.

We think a lot more can be accomplished right now by continuing to strain every energy toward that end, rather than by setting up some new target.

■

We are not trying to set down immutable economic laws. The weather's too hot for that. We are merely trying to review some of the simple facts we thought had been learned from NRA experience.

After all, most remedies we know of are good up to a certain point; beyond that, they are usually more harmful than helpful.

The Editor Says:

WE ARE not an excessively modest person, but we must admit some diffidence about attempting to tell the industry how this processing tax mess, in all its ramifications, is going to turn out. In fact, we think as good a way as any would be to put a lot of answers in a hat and draw one out.

Granting the industry's inability to read the stars, there are, however, certain ways in which cotton manufacturers can help to shape the future—and that is even more worth while.

The main way, in our opinion, is to conduct their individual businesses on the basis that processing taxes have to be paid right up to the time when, and if, the Supreme Court declares them unconstitutional. There is good legal authority for the opinion that all taxes due up to that particular moment will be debts which cannot be avoided. But whether that opinion proves to be right or wrong, it's the only sensible premise for a conservative manufacturer to operate on.

As a matter of fact, we are rather afraid that some mills are going to come to grief as a result of this mess. The long extension of time, plus the uncertainty as to eventual status, may have encouraged some companies to become lax about maintaining their processing tax reserves. If they have been dissipated, it is going to be just too bad in certain cases. A manufacturer may get a temporarily pleasant sensation of solvency, due to delay in tax payments, but the awakening may be a rude one. One of our friends remarked that this would be a good way to eliminate some of the unfit units. However, we don't feel quite bloodthirsty enough to gloat over that prospect.

Another point: If the processing tax creates anything like a permanent rift between sellers and their customers, it will have accomplished one of its worst crimes. The amount of money involved just isn't worth it. Some bad cases of market jitters developed in the few weeks immediately following the Hoosac case decision. Apparently, the idea of a little real cash coming back into the till was just too much for some folks. Fortunately this is being ironed out as this issue goes to press.

Finally, sales below cost (including tax) in anticipation of an anti-Administration decision are just plain stupid. There are enough troubles in this particular mess without adding that one.

All in all, the AAA business, from the very beginning, has been what our small boy would describe as a pain in the neck.

■

Midsummer Interlude

IT was a fine Saturday morning. We were anticipating a day at home. At the breakfast table, we gave a duty-glance over the index to the New York *Times*. Suddenly, the following item leaped at us: "Textile Leaders Support Bill for Regulation of Wages and Hours."

Visions of a holiday went glimmering. It would be necessary for us to go down to the office, rip the front section of this issue to pieces, and arrange for complete coverage of this important news. Incidentally, we felt a little ashamed of our "nose for news" which had not scented this under-the-surface movement before it "broke" in the dailies.

We turned hurriedly to the page indicated. The "leaders" were Messrs. Gorman and McMahon of the United Textile Workers of America. The bill was the "National Textile 'Act' "—quite the most amazing pot pourri of ways to save the textile industry that those two prestidigitators had concocted to date.

The salad bowl, hopefully called an Act, includes: Establishment of labor standards, minimum wage, maximum hours, work assignment, collective bargaining, licensing and labeling of all textile products, and inventory control, not to mention a plan for taking obsolete machinery out of the industry. The various governmental agencies, including the Post Office, the RFC, TVA (!) and others would be used as enforcement agencies. The union had been "informed" that the "Act" should stand the test of the Supreme Court.

■

Meet the "Leaders"!

IT would be quite in order for us to stop this here, and to let the above go as one of the best anti-climaxes of an anti-climactic year. But, unfortunately, there are still some members of the general public who do not know how incongruous it is to read about these textile "leaders."

Therefore, it should be recorded that these are the men who put on the "flying squadron" stunt last September, and tried to "lead" hundreds of thousands of textile employees out of jobs. These are the men who used truckloads of hoodlums in an attempt to intimidate textile workers who showed an overwhelming desire to stay at work. These are the men who, more recently, have fomented strikes in individual plants, against the inclination of the workers themselves, and have left closed plants and unemployment in their wake. These are the men who talk about "representing" the workers of the textile industry, even though the last A. F. of L. convention registered a U. T. W. membership of some 38,000 out of an employed personnel of more than a million in the textile industry.

It is unnecessary to examine further the provisions of the "Act." Textile manufacturers are thoroughly justified in quoting a famous black-faced comedian: "Even if it was good, I wouldn't like it."

Gorman, on occasions, has made annoyed references to the failure of textile manufacturers to recognize and deal with him. Unless the heat has suddenly gone to their heads, that is just exactly what they will continue to fail to do.

■

Saved Again

AS a textile editor, we naturally have to regard the drive started by a New York Kiwanian to persuade men to leave their coats at home, as the crime of the century.

But why worry about it? As the New York *Times* said, men suffer enough for want of pockets when they take off merely their vests. If they discard their coats too, says the *Times*, they will have to carry handbags. Can you picture that?

So once again the world is safe for the textile industry.

BEHIND THE SCENES

This Month

A Tough Assignment: We (the editor speaking) have never been any too smart about planning our mill trips. We are apt to find ourself heading South in August, or making a break for Vermont in January. Last month, however, the program was different. We went to Canada. . . . We have written a little piece about the country which you will find on page 62.

More Fireworks: The latest excitement in the industry has been the Hoosac Mills case decision. AAA is beginning to find out what NRA had to suffer. And now for the Supreme Court! . . . This and other thrillers are covered in the Survey of the Month commencing on page 60. Incidentally, how do you like this feature? We started it during the crisis last spring, and can't seem to get out from under; something new comes up every month. Also, any comments on points of view reflected in this review? If so, let us have them.

Advertising: There was a time when we were rather ashamed of textile advertising. But it's all different now. As we thumb through the pages of national magazines, we wonder what they would look like without the colorful pages about sheets and towels and hosiery and bathing suits and blankets and what have you. In fact, we doubt if any one class of products is advertised in a more attractive and appropriate manner. . . . We trace some of this progress in the article in the pictorial insert, starting on page 89. . . . Incidentally, we got quite a kick out of one sentence in an old (1871) Wamsutta ad. which you will find reproduced: "The goods are of the full width represented, and not on a basis of 35 inches for a yard." Reputable manufacturers evidently had to face the competition of chiselers away back then.

In the Swim: Have you noticed the bathing beauty in the hammock? You must have, because a lithographic reproduction of her is bringing joy to bill-boards throughout this section of the country at least. She is the spirit of the Fishnet bathing suit. And just one more sign of the revolution in swimsuits. Because, besides Fishnet in the knitted end, there are Sea Satin and other woven fabric bathing-suits. Not to mention the rubber bathing suits—which, in fact, a loyal textile paper *shouldn't* mention. It's not too early to think about 1936 styles. Read about them on page 67.

Pie-Charts: In our Annual Number, we presented a lot of pretty pictures showing cost breakdowns for a range of typical apparel and household fabrics. Now (page 66) we extend this to include a group of industrial fabrics. . . . No need to say anything about the author, Ralph Loper, of course; everybody knows him.

Hoods and Fans: Not as cryptic as it sounds. The design of hoods and the selection of fans, for ventilation of finishing plant equipment. Discussed on page 84 by Miles Sampson, formerly at American Printing Co. The article is based on the author's own experience and is very definitely of the practical type.

A Good Union: Ain't no such animal, many textile manufacturers will declare. However, this is not about that kind of a union. In the article on dyeing cuprammonium hosiery (page 80) W. H. Hand tells how to get a good union between the mercerized yarn in heels and toes and the cuprammonium yarn. He uses a modified single-bath method; careful selection of dyes and accurate control of the alkalinity of the bath during the boil-off and the dyeing are the secrets. . . . *Editor's Note:* Don't be too hard on us for that atrocious pun at the start of this paragraph. It's both the heat and the humidity.

On Braiding: Edwin J. Gibbons, well-known authority on manufacture of narrow fabrics, offers the first of two articles on "Braiders and Braiding" with a discussion of methods for changing over the machine from flat to round braids, and vice versa. (Page 78.)

No Guarantee: On page 75 is an illustrated article on Merlin fabrics, *said to be* first commercially successful fabrics made from mixture of cotton and bast fibers, and spun, woven and finished on cotton machinery.

Mill Floors: Last month we told you how you could get up to $50,000 from FHA for plant modernization. This month, we tell you how you can spend at least a part of it. . . . A. J. Cooper, author of "Replacement of Mill Floors," (on page 86) is structural engineer of Robert & Co., Atlanta. His article is particularly timely, in view of this FHA business.

Scrapping Machinery: There ought to be a law. At least that's what the Colwyn Committee in Great Britain seems to think about its own plan for scrapping a large part of Lancashire's spindles now considered redundant. This is a sequel to a previous story some months ago. Read about it on page 64.

Next Month

Rayon holds the center of the stage in September, when we publish our Eleventh Annual Rayon Year Book Number. This fiber is growing up. Last year our Annual Number celebrated the 50th anniversary of the discovery of "artificial silk," rayon's predecessor, by Count de Chardonnet. Next year, 1936, we shall celebrate the 25th anniversary of the first commercial production of the fiber in this country. . . . Despite the fact that it's no longer an infant, however, rayon is just as much of a thriller as ever. If you don't believe it, see our next month's issue.

FROM READERS

"We hope eventually that something tangible will come of the campaign against obsolescence, as there is, undoubtedly, a feeling in the minds of a great many people that much of the present cotton mill equipment could be replaced—with distinct savings in manufacturing costs, and opportunities for decidedly more and better production. . . ."

"It grieves me that so many of our people, particularly our cotton manufacturers, do not see trends. They only see events. . . ."

"I think you have hit the nail on the head when you say that 15% of the industry can upset any agreement. This is true not by reason of the actual harm they can do but because of the mental effect of their action on others. The comparatively few violations of the textile code and the lack of strenuous complaint as respects its operation indicate that what the industry primarily needs in order to give up some of its ill-advised practices is assurance that all others in the industry will have to do likewise. Coercion is needed largely as a threat as most of the industry will stay in line if they feel that there is some machinery for compelling adherence on the part of their competitors. . . ."

"One difficulty in the path of the association idea crops out through the differences in the situation, point of view and aspirations of those who are trying to vote on the same subject. For instance, I have finally had to admit to myself that I have been unreasonable in expecting a man whose plant is obsolete and whose business has been unprofitable for many years, whose labor viewpoint is the viewpoint of 1890, etc., etc., etc., to vote along with me on some of the things which I proposed from a starting point, which is so different from this other man's. . . ."

"I am again impressed with the remarkable improvement that has come over the TEXTILE WORLD under your leadership. In all seriousness, it has become the *Fortune* of the trade journal media. . . ."

AAA STEALS THE SHOW

By Douglas G. Woolf

Makes NRA realize it's really dead now

FOR quite a while after its demise, NRA tried to act alive. In fact, it reminded this writer of a chicken whose head has just been cut off. (*N. B.*—We're not trying to make a pun about the Schechter case.) It got continuing front-news space, long after it was decently buried, presumably.

During the last month, NRA received its final blow. The Hoosac Mills decision made AAA News Subject No. 1, and completely crowded NRA out of preferred positions.

After all, it was just as well. This final blow was similar to the coup de grace with which an executioner ends the suffering of the condemned.

NRA, as such, is now just a bowl of clippings.

Fortunately, it has left a heritage—and a noble one. Textile mills, with rare exceptions, are continuing to observe the basic labor provisions of the late codes. Moreover, such adherence has come to be more or less a routine matter. There is no longer the air of apprehension and of "neighborly" suspicion which we reported last month.

This does not mean that many observers are not constantly on guard against a possible collapse. It merely means that such a collapse becomes less likely as weeks pass and the NRA gains are retained.

The general atmosphere within the industry has been quiet: just about what one would expect this time of year. In fact, if it hadn't been for the aforementioned Hoosac Mills case, it would be difficult to find a headline for this story this month.

So on to the AAA.

■

AAA: We were in the office of a Canadian textile manufacturer in Montreal when news of the Hoosac decision reached us via him. He said: "I just have word that the Supreme Court, sitting in Boston, has declared your AAA unconstitutional. What's the Supreme Court doing, sitting in Boston?"

Although this particular phase of the problem doesn't puzzle us, there are plenty of features that do. In fact, this whole AAA situation has opened up a vista of problems, some big, some small, but all pesky, which threaten to stretch out for months—if not years—on end and to result in just as big a collective headache as any one similar agency has ever produced in the past.

News coverage of the decision, and of the AAA amendments, will be found in the Cotton Digest (page 108). We shall merely set down, here, a list of the more important AAA developments of the month:

Prior to Hoosac decision, suits to restrain collection of processing tax or to force return of taxes already paid, had continued in increasing numbers. Names of mills filing such suits became almost a "Who's Who" of cotton industry; in fact, not to file one was more of a distinction. Federal Judges in some districts bunched suits together and granted temporary injunctions on a grand wholesale scale.

Then came the dawn. Once more, the textile industry was the one to make history. U. S. Circuit Court of Appeals, deciding Hoosac Mills Corp. case in Boston, declared processing tax unconstitutional (July 16). Final decision is expected from Supreme Court in fall.

Industry-wide felicitation started. Dexter Stevens, chairman of Northern Cotton Mills Policy Committee, said: "The industry now feels that it has a fighting chance to save itself. Chester A. Davis, AAA administrator, has announced that an appeal from the Circuit Court's decision will be made to the U. S. Supreme Court and that a final determination will be made as promptly as the high court's procedure permits. That's fine. Every cotton textile worker in New England, every business man, whether he is the corner grocery storekeeper or the director of a large enterprise, will be happy to hear that. . . . This is a challenge from bureaucrats that every person in New England—and particularly cotton manufacturers—will be happy to accept."

But with the felicitations, as we intimated before, there were plenty of problems. One was the relative status of those who had filed suits, and those who hadn't. Another was the effect of the decision upon future price trends in cotton fabrics. Still another was the buyer-seller relationship in subsequent sales, with its question of mutual protection. And there were lots of others, most of which still rate as problems as this issue goes to press. Counless conferences have been held, at which wholesalers, manufacturers, selling agents, et al, have tried to find at least temporary solutions.

A constructive note was sounded by W. Ray Bell, president of Association of Cotton Textile Merchants of New York, when he said: "The consistent thought of the Industrial Recovery Committee of this association is that no action should be taken whereby the seller would make any gain from tax transactions at the expense of the customer. . . . The committee urges, therefore, that pending the conclusion of its studies, members will continue their normal marketing practices without change." This committee, incidentally, has been a vital factor in imparting assurance in midst of confusion.

Meanwhile, AAA worked frantically to save itself through changes in the amendments then pending in Congress. (See Cotton Digest and Washington Letter.)

■

Post-NRA: Federal Trade Commission early last month invited industries to submit agreements. By July 15, 170 industries had taken such steps: 100 direct with FTC, and 70 with NRA. FTC announced that, in authorizing a trade practice conference, the Commission must first be satisfied that such a conference is desirable and to best interest of the industry and the public.

Subsequent to this announcement, President Roosevelt met with FTC and NRA officials to work out cooperative methods toward the above end. . . . Meanwhile, some interest was manifested in a bill (H.R. 8476) introduced by Rep. Richardson to amend the Sherman

anti-trust act so as to legalize contracts or agreements establishing minimum wages and maximum hours.

Consumers' Goods Industries Committee, headed by George Sloan, has adopted resolutions urging on all industries "the importance now, more than ever before, of constructive cooperation through their respective trade associations as a means of furthering national recovery."

■

Labor: United Textile Workers of America, as usual, supplied comic relief for the month by sponsoring the "National Textile Act." (Presumably the terminology "Act" is to apply when and if the bill is passed by Congress.—Ed.) It provides for a 35-hour work-week maximum; minimum wage of $15, with graded minima, by classifications, above that base minimum; work assignment control; collective bargaining; licensing and labeling of all textile products; inventory control; and a plan for taking obsolete machinery out of the industry. . . . As we go to press, the bill contains no mention of the Italian-Ethiopian situation, or of the problems of soil erosion. However, we are confident these omissions will be corrected.

Meanwhile, the verbal engagement has continued on the woolen and worsted front. (See Wool Digest.)

■

South American "News": A New York paper on July 22 carried a story from Atlanta under this two-column head: "Cotton Mills Being Moved to Sites in South America." A sub-head read: "Secretary-Treasurer of South Carolina Owners' Association Says Mills Are Being Packed for Shipment—Exodus Said to Be by Former New England Factories—None Named." W. P. Jacobs, the "source" of this story, when interviewed by our southern editor could not recall giving an interview, but decided it must have been a garbled version of an interview with another publication in which he had stated *no* mills from South Carolina were being shipped to South America, although at one time one plant had been ordered packed for shipping, the order being rescinded later when the tax situation was adjusted.

Still another rumor, contained in a "confidential" news-service, was to the effect that domestic textile manufacturers had organized a large company for the production of goods in Brazil.

Of more substantial nature was the news that part of the finishing equipment of the American Printing Co. was being purchased by Mexican and South American interests.

■

Prophecy: Textiles are on the verge of an upward move. It looks like a good fall, in both activity and prices. We have a hunch that, by the time our next issue appears, this view will have become generally accepted. In fact, this is more than a hunch; all signs point that way. So hold on tight!

■

Mickey Mouse Department: We are encouraged to note that Mickey Mouse has found new fields to conquer: sheets and pillow-cases; blankets; towels, washcloths and bibs. We are sure it will be a better world when every article of commerce carries this irresistible figure. Mickey's rise during a period when everything else was falling, has been our one real source of confidence that the human race has some intelligence left, after all.

WASHINGTON HIGH-LIGHTS

By Irvin Foos
Washington office, TEXTILE WORLD

CONGRESS is delivering what the Administration ordered. If there is any compunction regarding constitutional inhibitions, the Administration, not Congress, has demonstrated it. And that is reserved exclusively for the NRA. In all other directions—social security, coal and public utility control—defenses have been thrown up against the attack on unconstitutionality.

Tax-in-law: The AAA is gratified by the handling which its amendments received in Congress. Writing the specific processing taxes on all basic commodities into law anticipates a decision by the U. S. Supreme Court that delegation to the Secretary of Agriculture to fix the measure of such taxes is unconstitutional. The Secretary is authorized to reduce the tax to zero or increase it by 20% but if this is likewise ruled out as unconstitutional, the statutory rates will apply until Dec. 31, 1937. As a matter of fact, it is pretty well understood that present rates will not be changed.

Recovery of Tax: AAA isn't greatly worried, or so it pretends, by the Senate amendment to the bill as it went to conference, which permits processors to recover taxes on proof that all or any part of them have not been passed on. So far as cotton is concerned, nothing can shake AAA's conviction that the tax has been passed on. The cotton-textile code was approved in July, 1933. The tax did not become effective until Aug. 1 and AAA believes that if the tax had been absorbed by processors to any considerable extent it would have shown up as a form of price-cutting. Consumer resistance to high prices also is cited as one of the industry's arguments for repeal of the processing tax.

Silk and Rayon Escape: On its way through Congress, repeated attempts to amend the AAA bill to impose compensatory taxes on rayon and silk were rejected on the ground that AAA had ample authority to impose such taxes, that none had been imposed because investigation had discovered that the cotton tax had not resulted in any undue shift of consumption to the competing fabrics.

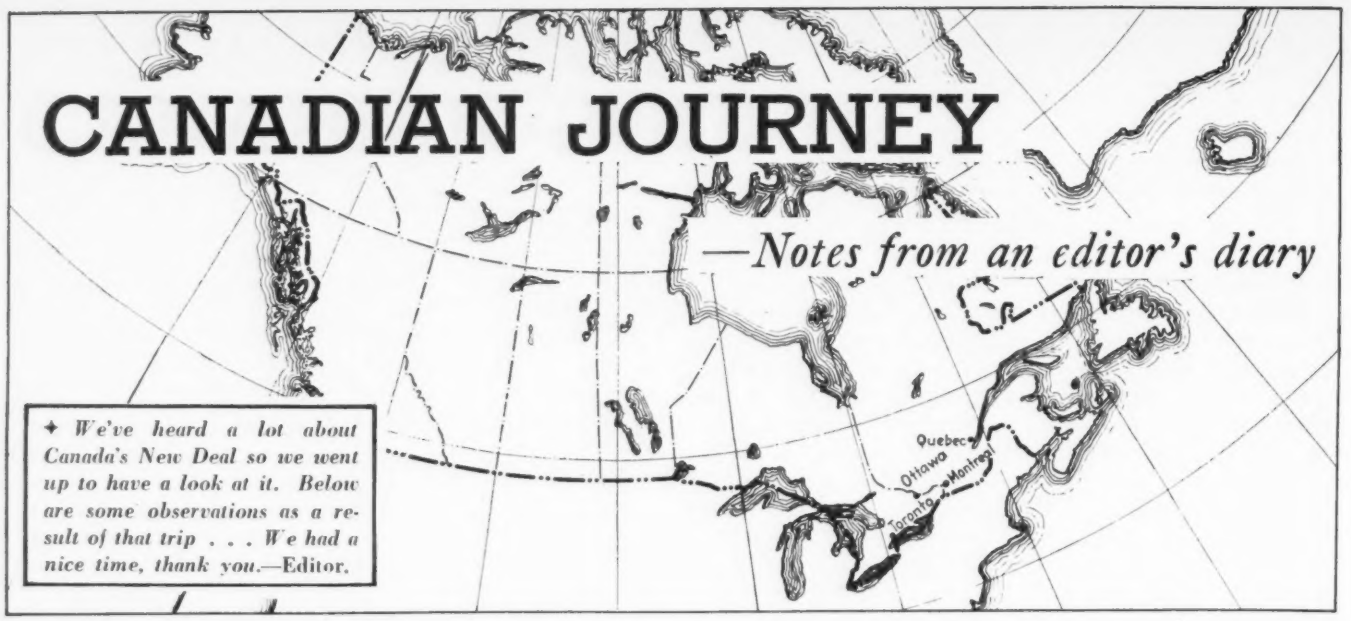
The bill carries a provision designed to project Secretary Wallace's "ever normal granary" theory, by authorizing payment to farmers in kind instead of cash, as in the 1933 cotton adjustment campaign when partial payment was made in options.

A Senate amendment extends the Bankhead Cotton Control Act for one year.

Ghost of NRA: While new NRA law will not emerge from the shadow of the Supreme Court's decision until the next session of Congress, if ever, the President's scheme to use the huge volume of Government purchases as a prop to maintain NRA wage and hour standards is well on its way to enactment. As compared with the total volume of industrial production, Government orders are small but they represent a much larger proportion of the textile industry's output.

The bill would require all contractors with the Government to abide by such wage and hour standards as shall be determined by the President either specifically or by reference to NRA codes previously applicable to their industries. Under the terms of the bill as reported by the Senate Labor Committee the only firms that would be eligible for Government contracts would be those which, after the bill's enactment, have observed NRA wage and hour standards with respect to employees engaged in carrying out the contract.

More Taxes: Big textile companies will pay higher tax rates than small textile companies if the President wins his fight for a scale of corporation taxes graduated according to mere size of income. If the President loses, the increased burden on the little companies will come through an increase in excess profits taxes. Under these circumstances it is apparent that the interests of the big corporation and the little corporation are not identical.



CANADIAN JOURNEY

—*Notes from an editor's diary*

✦ *We've heard a lot about Canada's New Deal so we went up to have a look at it. Below are some observations as a result of that trip . . . We had a nice time, thank you.*—Editor.

CANADA is going through, or is about to go through, or may go through, the experiences of a New Deal. That—or rather those—are the impressions one gets from talking to Canadian textile manufacturers. Which impression one gets, depends upon what manufacturer one is talking to.

It's all very complicated—at least to an outsider. The legislation passed by Parliament certainly resembles, in toto, a man-sized New Deal. There are measures providing for unemployment insurance, a 48-hour week, minimum wages, and a Dominion Trade and Industry Commission (an anaemic version of our own late-lamented NRA)—not to mention agricultural aid, security regulation, Federal housing, consumer standards, and others.

But the hitch seems to be that part or all of this legislation may never become effective. There is not only the jolly old question of constitutionality (which we had thought was an American patent) but an apparently assured change of government scheduled for the fall, with the prospect that the new-comers might throw all their predecessors' household effects out the window.

However, despite all this political embroidery—and a lot more which we won't even mention—there seems no reason to doubt that Canada will have government in business to a greater extent than ever before. The movement for economic and social reform will go on, irrespective of the party in power; only the brand will be changed.

Consequently, it is of interest to get a quick—and, to some extent, casual—view of the textile industry in that country.

Does Canada Need an NRA?

Here again, the answer depends upon whom you're talking with. We found the usual variations in opinion among Canadian textile men—with the prevailing tone decidedly conservative—more so than it is in our own textile industry just now—possibly about where our manufacturers were back about 1921, before the plunge into the private textile depression started. Here and there, however, was manifested strong realization of the need for something of the NRA psychology, particularly as regards hours and wages.

But this very definitely depends upon the branch of the industry with which one is connected. Cotton manufacturing, for instance, is highly centralized in the hands of a relatively few firms, with resulting stability in wage and price levels. Silk and rayon weaving, on the other hand, is a free-for-all. We had barely started on our round of calls before we began to hear stories of small outfits, setting up a few second-hand looms brought from Paterson or other sections of this country, and operating in the limited way that most Paterson loft plants do: that is, having most of the functions, outside of yarn preparation and weaving, performed outside on commission. The wages paid by certain of these outfits have been pretty sorry.

Apparently, this situation is being cleaned up—mostly by Provincial action. Quebec, for instance, now has a women's minimum wage act which went into force Aug. 1. This governs female employees, and males when replacing females, in any class of employment in the textile industries. No wage shall be less than set forth in the following table:

City and Island of Montreal and a radius of 10 miles around:
10% of the employees, at not less than 14½c per hour
25% of the employees, at not less than 19c per hour
65% of the employees, at not less than 25c per hour

Province of Quebec, with the exception of the City and Island of Montreal and a radius of 10 miles around:
10% of the employees, at not less than 12½c per hour
25% of the employees, at not less than 17c per hour
65% of the employees, at not less than 21c per hour

On the matter of hours, Quebec works 55 hours per week—and Ontario and New Brunswick 50 hours per week. However, there is a definite belief that each of the Provinces will pass a 48-hour law, to "tie in" with the Dominion law previously mentioned.

Need for price and production regulation also varies in the several branches. Staple cottons, as we have said before, apparently need no such machinery. On the other hand the hosiery branch, through its association, is attempting—with good success, we understand—to insure price stability. The woolen and worsted division, we gathered, has been going through a period of wobbly prices which made profits extremely difficult.

The Dominion Trade and Industry Commission, set up by one of the new acts, would be empowered to permit price and/or production agreements where they would be in the public interest (Shades of NRA!). The Commission would also be empowered to set up stand-

ards of trade practice for various industries, following conferences similar to those which have been held in this country by the FTC. However, there would be no "teeth" in such standards; the Commission would merely go on record as to which business practices are fair, and which are unfair.

That, then, is the nucleus around which may develop a Canadian NRA. However, we brought home one very definite impression: If textile manufacturers are a fair sample of the population of that country, there is every intention to profit by the experiences of the United States with the NRA. On all sides, we heard the comment that this country had "gone too far"; that it had tried to include industries which were too small or too decentralized to permit of enforcement; and that our codes had been dressed up with too many trimmings. Canada has a big advantage in being neighbor to a country whose recent experience can be used as a free object-lesson.

Canada's Tariffs

If you don't want to talk tariffs, don't go to Canada. It's one of the principal subjects of conversation.

From the textile standpoint, the relations between Canada and Great Britain represent the chief phase of this problem. Financial reports for the year ended March 31, 1935, have been made public recently by both the Dominion Textile Co., Ltd., and Canadian Cottons, Ltd., the two largest companies. In both reports, competition from Lancashire is high-lighted as the major reason for reduced earnings as compared with the previous year.

Here, it is not only a question of the duties on the commodities involved, but of the excise tax. The latter, amounting to 3%, is imposed upon all imports, whether raw or manufactured. However, as a result of the famous Ottawa conference, this tax, as applied to cotton goods from Great Britain, was cut in half in 1934—and, in February of this year, was removed entirely from those particular imports. The cotton industry feels that it is discriminated against.

It feels still more unhappy, judging from the two reports mentioned above, because of the fact that it continues to pay a 3% excise tax on raw cotton from the United States and Egypt, which, states the Dominion Textile report, raises the price of its raw material $2.50 per bale above the world level obtaining in other countries whose manufactured cotton goods are competing with Canadian goods in the home market.

We sense more than a little sarcasm in the following sentence in the Canadian Cottons report: "In view of the still serious unemployment situation in this country, we doubt the wisdom of a further transference to England of work that is now being done in Canadian factories."

The other major phase of the tariff problem is that involving Japan. By invoking its dumping duty which applies against exports of all countries with depreciated currencies, Canada can bar Japanese products effectively. But this has started a row. Japan retaliated with a 50% surtax on Canadian goods. As we write, the war is still on.

Obviously, the big factor of uncertainty among Canadian textile manufacturers right now is what the new Government will do about the tariff.

There are, naturally, two main schools of thought. One group feels that Canada has too high a tariff wall, and cannot begin to make the progress to which a country of her size and resources is entitled, until she cuts down that wall materially. Canadian textile manufacturers—to a man, if our own contacts are a fair criterion—belong to the opposite school. They point out that, as a result of the tariff of 1930, put in by the present Government, they have passed from a status where a majority of the textiles was imported to one where domestic mills now supply that majority. And certainly, from the standpoint of the textile industry, that one fact is all the answer manufacturers need.

Textile manufacturers in Canada, as we indicated above, feel they have been discriminated against. They feel that the country at large has not a proper understanding of the contribution and needs of this basic industry. Consequently, they formed the Primary Textiles Institute, an organization coordinating the efforts of the cotton, wool and knit goods, and silk associations. (See TEXTILE WORLD, April, 1935). Its principal function is to enable the industry to present a united front, particularly on matters involving pending legislation. We found a unanimous verdict that it was performing this function adequately.

In some quarters, however, we found disappointment that its functions were not broader. One man suggested, for instance, that a program of merchandising and promotion, aimed to expand the market for textiles, should be undertaken.

Personally, we were somewhat surprised to learn of the rather limited scope of this Institute. Prior to its formation, we had suggested an American Textile Institute, with several major functions to perform for the textile industry as a whole. When we learned of the initiation of the Canadian program, we thought this idea would now be given a try-out. However, the fact that it is limited primarily to one major function precludes it as a test-case for the idea we had in mind.

Physical Condition of Mills

Through the courtesy of several manufacturers—which proved always to be unfailing—we went through a number of plants. We believe they represented a fair cross-section.

Our net conclusion is that, on the average, the physical condition of Canadian mills is not up to that of mills in this country. We believe Canadian manufacturers are slower in adopting new machinery and processes than are manufacturers in the United States. We understand that there is a trend toward greater receptivity in this connection; if so, its importance cannot be overemphasized.

Certain branches of the industry, as pointed out previously, are immune for the present to serious competition, due to their concentration within a few companies. Other branches, however, are wide open.

Competition can take two forms: (1) that from mills relying mostly on wage and price chiseling; (2) that from mills relying on the most up-to-date equipment and operation. The first kind can be controlled by statute, as referred to above. The second kind is the really dangerous one. Small, well-equipped, well-managed mills, particularly in the non-staple branches of the industry, could dance rings around those established companies whose equipment and methods have not been kept up-to-date.

We like Canada. We like its climate, its scenery, and above all its people. Frankly, if we were at the adventuresome stage of life, we'd start a little textile mill up there.

Scrapping Spindles . . .

Lancashire plan taken under Government's wing as bill in Parliament

(*From our Manchester, Eng., Correspondent*)

THE Colwyn Committee's scheme for scrapping a large proportion of Lancashire's spindles, now considered redundant as a result of the decline in export business, has now been taken over by the Government, and the Cotton Spinning Industry Bill has been formally introduced into Parliament. Actually it is doubtful whether the bill will be carried through the subsequent stages before the autumn session, but efforts are being made to put the bill through during the present session if there is little or no organized opposition in the House of Commons. The steps which led to the changing from a private scheme within the confines of the industry to a measure enforceable by law are not very clear, but it is generally assumed that there were not sufficient offers of spindles on a voluntary basis to make the private scheme a practicable proposition.

The bill provides for the appointment by the Board of Trade of a Spindles Board which shall be empowered to buy up redundant cotton spinning plant and scrap, sell or otherwise dispose of such plant. There is a proviso that the plant shall not be sold for export. The board is also to furnish general information regarding its operations to an advisory committee of four representatives of the cotton spinning trade so that the position may be kept under review on behalf of the industry.

The financing of the scheme is based on a loan of £2,000,000 repayable over a period of fifteen years. Unlike the original Colwyn scheme, no differentiation in regard to the amount of the levy to repay the loan is made between American and Egyptian cotton spinners and the equivalent of 1⅛d. per mule spindle is to be levied on each spindle per year. Ring spindles for the purpose of the bill are based on two ring spindles as being equivalent to three mule spindles.

It is proposed to carry out the whole program of scrapping the spindles in two years with an additional year if necessary. Any owner who guarantees not to run his spindles for a period of five years can become exempt from the levy during that period, but only 1,000,000 spindles will be allowed to remain on this basis. Any time before the end of the fifteen years the levy may be discontinued in the event of the whole of the liabilities of the board having been discharged.

There are naturally restrictions on the installation of new plant. During the first three years, while the actual buying and scrapping is in progress, there will be no new plant installed unless a corresponding number of old spindles is scrapped by the firm concerned, and anything of this nature will be regulated by the board. In addition new spindles installed after the first three years will be required to pay levy as from the beginning of the scheme. Spindles engaged on rayon staple fiber are regarded as cotton spinning spindles in the usual way. The power to purchase spindles may be withdrawn at any time on the application of firms representing two-thirds of the then existing spindleage.

It is generally considered that the scheme is to be the forerunner of similar reorganization schemes for the other sections of the cotton trade.

It has met with a certain amount of opposition, but a majority in the trade seems to favor it. There are still many people who hold the view that the gradual "survival of the fittest" process of dealing with redundancy would have solved the problem in a few years' time with less expense. Against this is the argument that the weak units are making profitable business doubly difficult for the efficient units.

Again, the fact that no provision is made for replacement of spindles with more up-to-date types is a common criticism, and it is also held that a good many concerns would have been wound up by now had there not been the redundancy plan with the chance of compensation.

Unlike the original Colwyn scheme, firms which are closed down have to pay the levy, and if the bill is passed directors will be faced with the three alternatives: (1) Paying the levy and re-starting the mills; (2) paying the levy and remaining closed; (3) offering the spindles for sale.

Criticism is also leveled against the scheme on the basis that firms with the most up-to-date mills have in some instances had to close down through financial difficulties, while others with out-of-date machinery are still running. In these cases the prospects of the least modern mills being scrapped in every instance are not strong. The banks, which have mortgages on most of the mills likely to have their spindles sold for scrap, will be the largest receivers of compensation at the rate of 5s. per spindle.

There are a number of firms in various parts of the county which are opposed to the scheme in principle and they now claim to represent 11,000,000 spindles. They argue that the scheme would confer hypothetical benefits on the large firms and combines and at the same time penalize the small firms.

***CONSIDERABLE** doubt as to the ultimate passage of the Cotton Spinning Industry Bill, referred to in the accompanying article, is expressed in a letter we have received from a friend in Manchester:*

"The government has announced that it would formally introduce the bill into the House of Commons and would then publish it to the world at large in the form of a White Paper—a most unusual course, I might add. The fact that the bill is being published as a White Paper before it is a law means obviously that it will be discussed and rediscussed and that its enemies will tear it to shreds in the press and on platforms and in private discussions. I honestly believe that nobody, not even excepting many members of the Colwyn Committee, really wants this bill, and it is quite possible that it may never be passed."

Raw material is the

Big Item of Cost

in industrial cottons

By Ralph E. Loper

R. E. Loper Co., Fall River and Greenville

◆ *Supplementing the cost break-down of nine fabrics and three yarns presented last February in our 1935 "Annual" issue, Mr. Loper offers similar data on this page covering heavier goods of the so-called "industrial" class.*

THESE charts are based upon data from well-run, efficient mills. All elements of cost are included except selling expense and interest on investment.

The cost in efficient mills frequently exceeds the current selling prices, so that percentages could not conveniently be based on the sales dollar.

The charts show clearly the relative importance of processing taxes and raw material costs in these types of fabrics. It is important to keep waste at a minimum in making such products.

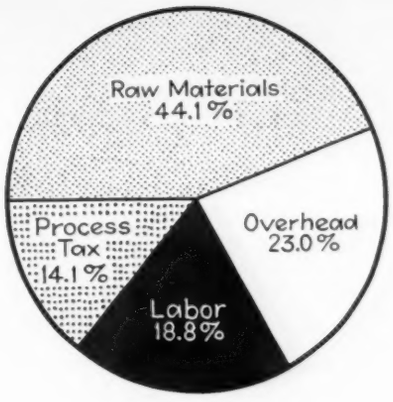
Even in fabrics of this type the ratio of overhead to labor changes greatly. This shows that a proper distribution of overhead is essential to obtain accurate costs.

The table below gives the subdivisions of the overhead of which the total only is shown in the charts.

Percentages Various Items of Cost Are of Total Cost

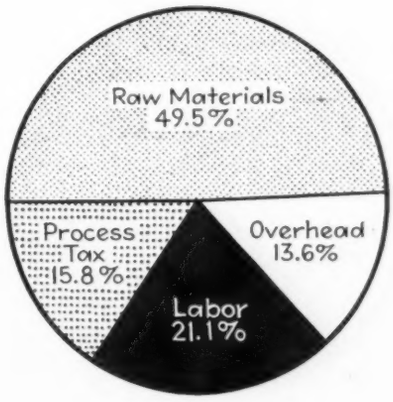
Items of Cost	Denim	Drill	Osnaburg	Chafer Fabric	Duck	23/5/3‡ Tire Yarn
Supplies & Repairs....	**13.4%	5.4%	5.0%	4.1%	6.0%	2.5%
Power & Fuel.....	3.9	3.0	2.8	1.8	3.3	3.7
Taxes*.....	.7	1.0	.9	.6	1.1	.6
Depreciation.....	1.8	2.3	2.1	1.4	2.6	3.9
All Other Overhead†..	3.2	1.9	1.9	1.4	2.2	2.9
Packing & Freight....	.....	.....	.....	.....	.....	3.0
Total Overhead....	23.0%	13.6%	12.7%	9.3%	15.2%	16.6%
Labor.....	18.8	21.1	19.2	14.9	17.6	20.5
Raw Materials.....	44.1	49.5	51.3	57.5	50.9	48.9
Processing Tax.....	14.1	15.8	16.8	18.3	16.3	14.0
Totals.....	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

*Exclusive of income and processing. †Including Salaries.
**Includes Dyestuffs and Finishing Materials. ‡Made from American Cotton.

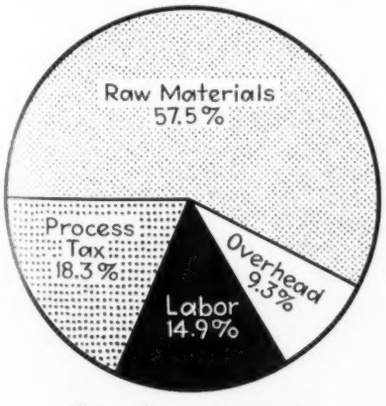


Denim

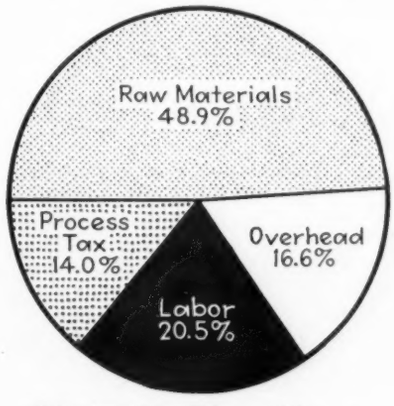
Osnaburg



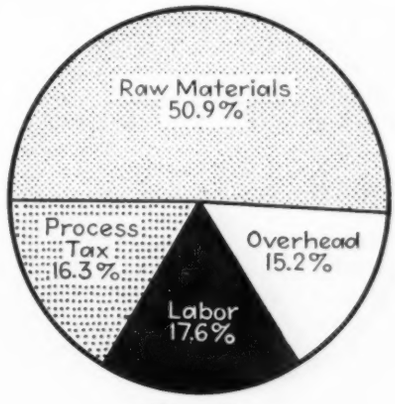
Drill



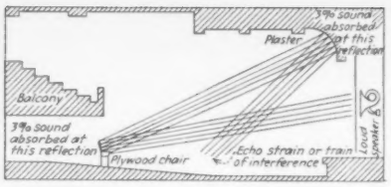
Chafer Fabric

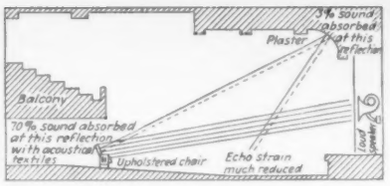


23/5/3 Tire Yarn



Duck





Acoustical Properties

Of textiles

By Robert G. Silbar

"ARE you showing talkies or squawkies?" A few years ago theater owners were asking each other that question, and they have since found that the answer depended largely on their draperies and upholsteries. Talking motion pictures rendered practically all wood and leather-covered theater seats obsolete. A new market for upholsteries and draperies opened up. Prime consideration was not the comfort an upholstered theater chair provides, nor wearing qualities, nor decorative appeal; it was its acoustical properties.

In 1931, in one eastern trade area, 50% of all school auditorium seats sold were upholstered; in 1932 the figure reached 70%, and in 1933 it passed 90%. With 1½ yd. of 54-in. goods going into each theater chair, total yardage for the whole country is of consequence.

The part textiles play in acoustical engineering was not fully realized until 1929 when the American Seating Co. began experiments jointly with the United States Bureau of Standards, with Prof. Floyd R. Watson, of the University of Illinois; with data of the late Prof. Wallace C. Sabine of Harvard; and with their own research engineer, W. Keith Friend.

When a sound is produced in a room it is reflected back and forth from the seats, floor, walls and ceiling, a portion being absorbed at each reflection until its intensity is so reduced that it becomes inaudible. Ordinary plaster surfaces of a room absorb only about 3% of sound energy at each impact, 97% being reflected. Owing to the high speed of sound (about 1,120 ft. per second) there may be many of these reflections in the course of a few seconds before enough energy is lost to make the sound inaudible. This lingering of sound, which has been found to last as long as 10 seconds, is called "reverberation." In auditoriums properly treated with sound absorbing materials, the sound lasts barely more than one second before being absorbed. Such materials include textiles which may readily be applied to chairs and floors. A theater chair should be upholstered in such a way as to give it the same sound absorptive value as the average adult person, to prevent sound distortion when a theater is only partly filled.

It can be seen from Table I that velours and mohairs have a greater sound absorptive value than plain cottons. Draperies hung in contact with walls have only a quarter the absorptive value of drapes hung 4 in. away from the wall, while drapes in heavy folds absorb more than those hung straight. Textile manufacturers have little to fear from competition of commercial wall treatments, as textiles can serve fully as well for correcting acoustics and usually cost less.

Tests made with different seats and coverings in a 1,500-seat theater have been made by acoustical department of American Seating Co. working in conjunction with Bureau of Standards. Details appear in Table II.

Acoustical analysis of a room follows the formula of Prof. W. C. Sabine: $t = .05\ V \div a$, where t = reverberation time in seconds; .05 = a constant; V = volume of room in cubic feet, and a = total absorption in the room. The problem is to reduce the reverberation time, t, until hearing conditions become satisfactory. This is done by increasing the total absorption, which in turn depends largely on the kinds of materials present — draperies, upholsteries, and carpets.

Hair felts and draping materials such as velour, monk's cloth and damask, if used in large quantities, will absorb all frequencies, but have a greater effect in absorbing higher frequencies (the ones most disturbing to the human ear). Much of the market now dominated by various acoustical correctives, such as porous wall treatments is open to the textile manufacturer.

V. L. Chrisler, Bureau of Standards, conducting sound absorption tests on occupied and (later) unoccupied theater seats. He sits in sound proof cabinet so that his constant presence will not affect relative value of figures.

TABLE I. Coefficients of absorption at 512 cycles for common textiles (Bureau of Standards)

Open window (base of tests)	1.00
10 oz. cotton draperies, hung straight, in contact with wall.	.11
Same, 14 oz.	.13
Same, velour, 18 oz.	.35
18 oz. velour, hung 4 in. from wall	.44
Same, hung 18 in. from wall	.44
14 oz. cotton, draped to ⅝ its area	.15
Same, draped to ¾ its area	.40
Same, draped to ½ its area	.49
Drapes in heavy folds	.25 to 1.00
Carpet, 1 cm. thick, on concrete	.21
Same, on felt (.03 cm.), on concrete	.37
Commercial wall treatments (plasters, boards, felts, etc.)	.03 to .74

TABLE II. Total units of absorption at 512 cycles (American Seating Co.)

Plywood chair, cast iron standards	.25
Same, with ¼" velour-covered jute pad on front of back	.72
Imitation leather, box spring seat	1.60
Plywood back, velour panel insert	2.50
Fully upholstered chair	3.60
American Loge chair	4.50
Oak church pew, per linear foot	.25
Oak church pewing, upholstered	1.30
Absorption of adult persons seated:	
In chair covered with velour	4.07
In chair covered with mohair	3.90
In upholstered oak pewing	3.30
In loge chair	5.50

JAPAN

Sending us cotton goods at six times the rate of last year

IF IMPORTS of cotton goods, in square yards, from Japan into this country continue during the second half of the year at the same rate maintained during the first half, they will perform several statistical stunts:

1. They will total about six times the imports of similar products from Japan in 1934;

2. They will amount to more than the total cotton goods imports from *all countries* in 1934;

3. They will represent 60% of this year's total cotton goods imports from all countries, whereas in 1934 the imports from Japan were only about 17% of the total, and back in 1929 only about 2%;

4. They will be about 18 times the Japanese imports in 1929.

In fact, the only consoling feature of the figures for the first six months of this year, just released by the Department of Commerce, was the fact that June slid off, being the low month of the half-year. This checks with reports from Japan to the effect that general exports from that country fell off sharply in June, causing considerable concern and discussion as to curtailment remedies.

Month-by-month imports from Japan for the year 1934 and January-June, 1935 are shown in Table I. In Table II are shown annual total imports of cotton goods from 1929 to date, from all countries and from Japan. The 1935 figures are for the first six months only.

Obviously, Japanese imports still represent only a very small part of domestic consumption. Using as a base the production figure in "Ten Years of Cotton Textiles," prepared by the Association of Cotton Textile Merchants, cotton goods brought into this country in 1934 were about 1/10 of 1% of the production here. However, the fact that thus far this year we have imported from Japan every two months as much as the total receipts last year makes the industry realize that this trend is a serious threat to the domestic market.

Table I—U. S. Imports of Cotton Cloth From Japan, by Months, 1934-1935

1934	Bleached Sq. Yds. (Thousands)	Bleached Dollars	Printed, Dyed or Colored Sq. Yds. (Thousands)	Printed, Dyed or Colored Dollars	Total Sq. Yds. (Thousands)	Total Dollars
January	4	$ *	26	$ 2	30	$ 2
February	73	4	14	2	86	5
March	266	11	67	6	334	17
April	482	18	55	6	537	24
May	642	24	182	18	824	42
June	180	7	132	14	312	21
6 mos. total	1,647	$ 64	476	$ 48	2,123	$ 111
July	296	$ 13	91	$ 8	387	$ 21
August	332	12	56	5	389	18
September	589	24	94	10	683	33
October	372	15	195	16	567	31
November	813	36	115	8	927	44
December	1,995	89	215	16	2,210	105
Year's total	6,044	$253	1,242	$111	7,286	$ 363
1935						
January	2,633	$113	708	$ 44	3,341	$ 157
February	4,348	205	507	36	4,855	241
March	3,854	193	721	52	4,575	244
April	2,319	98	851	61	3,170	160
May	2,461	101	725	47	3,186	148
June	2,039	82	325	26	2,364	108
6 mos. total	17,654	$792	3,837	$266	21,491	$1,058

*Only $242

Table II—U. S. Imports of Cotton Cloth From All Countries and From Japan, 1925-1935

	From All Countries Sq. Yds. (Thousands)	From All Countries Dollars	From Japan Sq. Yds. (Thousands)	From Japan Dollars
1929	61,185	$15,901	1,217	$ 188
1930	35,517	9,426	1,016	118
1931	34,732	7,035	770	106
1932	29,436	4,248	789	57
1933	41,348	6,360	1,116	78
1934	41,534	6,736	7,287	363
1935	36,623*	3,878*	21,490*	1,058*

*1st 6 mos. only

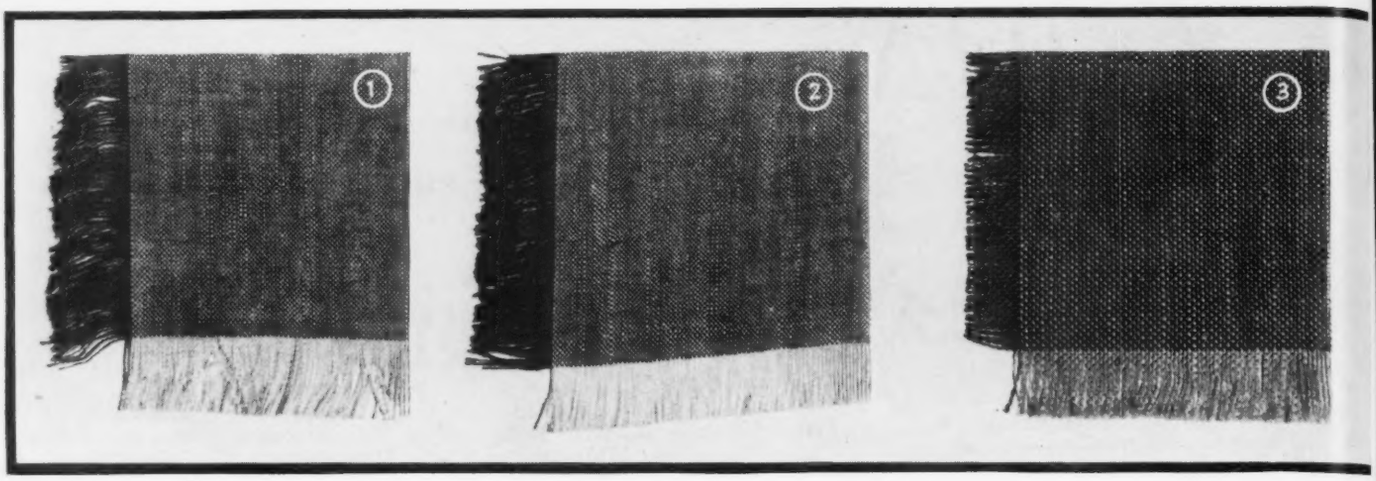
Japan's Rayon Output Grows

Meanwhile, news of Japanese growth on another front is at hand. Rayon production in that country continues to increase, reports received in the Commerce Department's Textile Division show. The output reported by the Japan Rayon Producers' Association, estimated to represent 85% of Japan's total rayon production, for the first six months of this year was 92,294,100 lb.; an increase of 27,936,500 lb., or 43½%, compared with the first half of 1934, statistics show.

The increased production facilities of several firms came into operation in June and practically all firms worked at capacity in anticipation of curtailment. The result was that production in that month of rayon by members of the association reached a new high of 18,816,300 lb., an increase of 1,729,000 lb., compared with the May output, it was stated.

Production Plans

Members of the association, with the exception of three companies, it is pointed out, agreed to curtail production by 20% during the period July-September, inclusive, but it was anticipated that the actual reduction in output would be materially less because of the expansion plans of some of the companies and exemptions which were granted others.



By George Fuller
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Chambray Pitfalls

THE production of satisfactory chambrays containing a regular color effect, in either low or high qualities, may appear to present no more of a problem than does the satisfactory production of any other staple cotton cloth. However, those who have attempted any general duplication of such goods, or who have made them in quantities over a period of years, realize fully that, for a staple material used for ordinary purposes, the difficulties in production and the return for effort, knowledge, and exactness in manufacturing are probably as small as, and possibly relatively less than, for any other cotton cloth.

Different types of chambrays are made, without considering the variations created by numbers of ends and picks per inch and by yarn sizes. Probably the most important type is that which contains a blue (usually indigo-dyed) warp and white or gray (unbleached) filling. Other types consist of indigo-dyed warp and stock-dyed filling; stock-dyed warp and gray or stock-dyed filling; yarn-dyed warp and gray or yarn-dyed filling; and gray warp combined with yarn-dyed filling. The non-cotton fabrics which are nearest to cotton chambrays in color contrasts are the two-toned silk taffetas.

Most ordinary chambrays are woven on automatic looms; but because of the difficulties caused through exceedingly small variations, much more care and exactness in production are required than in handling most cotton cloths. It is because of the warp and filling color relation or balance that many of the slight variations which are unimportant in most cloths become so pronounced or accentuated in a chambray construction as to be considered a defect. Some of the small variations in ordinary cloths which normally do not cause trouble, but which are likely to do so in chambrays, follow:

1. Differences in yarn size in warp or filling. This changes the color relation.

2. Differences in yarn twist in warp or filling. This causes a different reflection of light with a consequent variation in appearance.

3. Differences in color or shade of gray cotton from lot to lot, or variations in cotton smoothness—as from one season to the next. The warp color may be reduced or accentuated, depending upon the color of the undyed filling.

4. Differences in yarn regularity on the various quills of filling. Bars or shaded places are caused by a comparatively small change in yarn regularity or appearance, and it is important to keep the yarn as regular as possible, whether it be good or bad.

5. Differences in dye characteristics, time of dyeing and other related factors. Slight variations which are not particularly apparent in many cloths are accentuated in chambrays.

6. Differences in the number of picks per inch. This does not refer to radical variations, but rather to those normally expected, due to filling changes and to differences which may exist in warp tension during warping, slashing, or weaving.

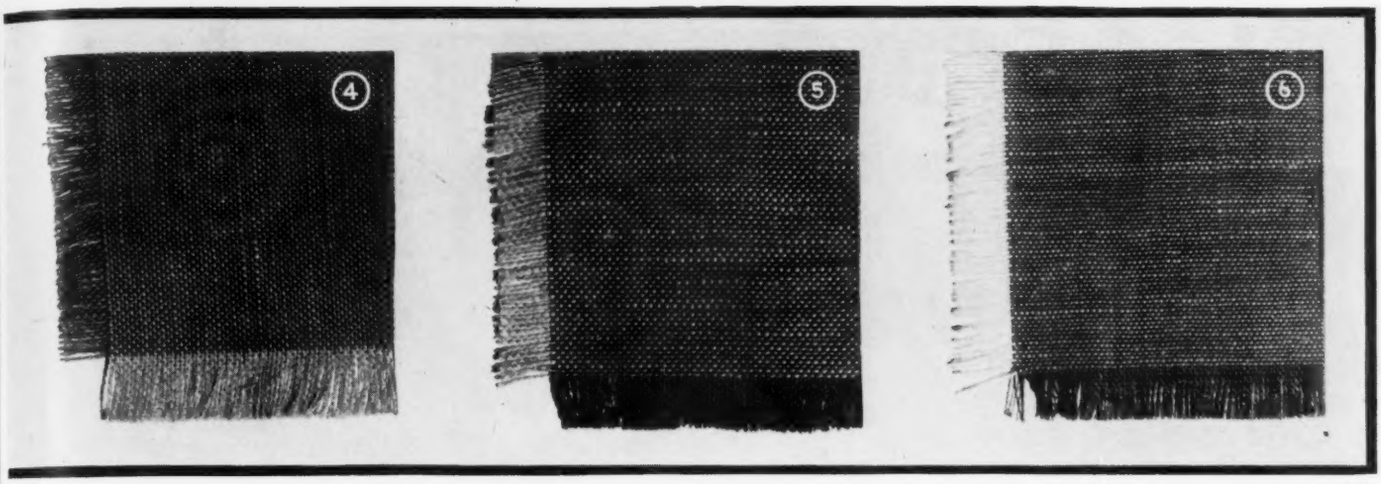
7. Differences in room humidification and in the percentage of moisture which the warps may contain in the morning as compared with late afternoon, or on Monday morning as compared with later in the week.

8. Differences in percentage of moisture contained in the filling yarn when actually inserted in the cloth. This involves the amount of conditioning and the drying out before the filling is used, due to low humidity or long waits after conditioning.

9. Differences in finishing, either alone or in combination with some of the factors previously mentioned.

It is a fact that many manufacturers who have attempted to duplicate some particular fabric have failed to do so because of a more or less delicate variation which has not been recognized due to general mill conditions and to lack of opportunity for cooperative investigation. The idea which should be emphasized for most chambray fabrics is that the normal cloth effect often is due to a fundamental defect. Any variation from the normal or standard result is considered a defect by comparison, even though the defective goods may be more nearly perfect in every way than those which are considered as standard.

In order to make the problem somewhat clearer, it may be desirable to indicate generally what cloth constructions are referred to. Naturally, a rather wide range of yarn sizes, ends and picks per inch, cloth weights, and qualities is involved; but because much of the material is used for garments where service is a necessity, the fabrics are fairly heavy and firmly constructed. The ends per inch are higher than the picks, and the filling is likely to be finer in size than the warp. One type of cloth contains approximately 14/1 warp and 15/1 filling. The ends may vary from about 48 to 56 per inch; and the picks, from about 40 to 48 per inch. Another type contains from 18/1 to 20/1 warp and from 25/1 to 30/1 filling. The ends may vary from 64



Sample 1 differs from 2 because its filling has been badly stained by the warp
Sample 3 is lighter than 4 because more color has been rubbed off the warp of the former in the weaving
Sample 5 is a low-quality construction with slight contrast in color
Sample 6 shows a motley effect because sprung bottom rolls on the spinning frame made uneven yarns

Potential causes for defects peculiar to fabrics with contrasting-color yarns

to 76 per inch; and the picks, from 44 to 56 per inch. Another type contains 28/1 to 32/1 warp and from 30/1 to 40/1 filling. The ends may vary from 72 to 88 per inch; and the picks, from 60 to 76 per inch. A somewhat finer cloth is also made which contains about 40/1 warp and 40/1 to 50/1 filling. It often is not thought of as a chambray, due to its fine effect. Actually, the two general constructions first mentioned are the ones which form a large part of the total distribution.

Of course, some of the statements made as to the difficulty in producing even goods may appear to be exaggerations, particularly to those who are not acquainted with the problem. In order to indicate that the conditions mentioned, together with others similar, do cause serious trouble, a few comparisons have been made.

Samples 1 and 2 were made in two different plants, and No. 2 was supposed to be a duplicate of No. 1, as near as the quality of the normal warp and filling yarns would permit. These chambrays contain gray or undyed cotton warp and dyed filling. The fact is that, outside of the variation in yarn quality, the two fabrics would be considered identical from a practical standpoint. Cloth No. 1 has 83 ends and 76 picks per inch, while cloth No. 2 has 84 ends and 75 picks per inch. Cloth No. 1 has about 27/1 warp and 27/1 filling, while cloth No. 2 has about 26/1 warp and 27/1 filling. The slight yarn difference is not a particularly important cause of the variation in appearance.

Examination shows a somewhat different color in the dyed filling in the two cloths, with that in No. 1 slightly lighter. However, the warp yarn in No. 1 is slightly stained from the filling, while the warp in No. 2 is not stained. Undoubtedly the original colors for the filling in both cloths were very nearly the same. It is not so much that the filling in No. 1 has lost color, but rather that the warp has been dulled and thereby the color contrast between warp and filling has been changed. Although sample 2 might be considered superior to sample 1 because tests show that the filling color is better, No. 2 cannot be considered a satisfactory duplication of No. 1—all because the appearance of the latter depended on a defect which occurred regularly and which the manufacturer of sample 2 succeeded in avoiding. The bleeding probably occurred in the finishing.

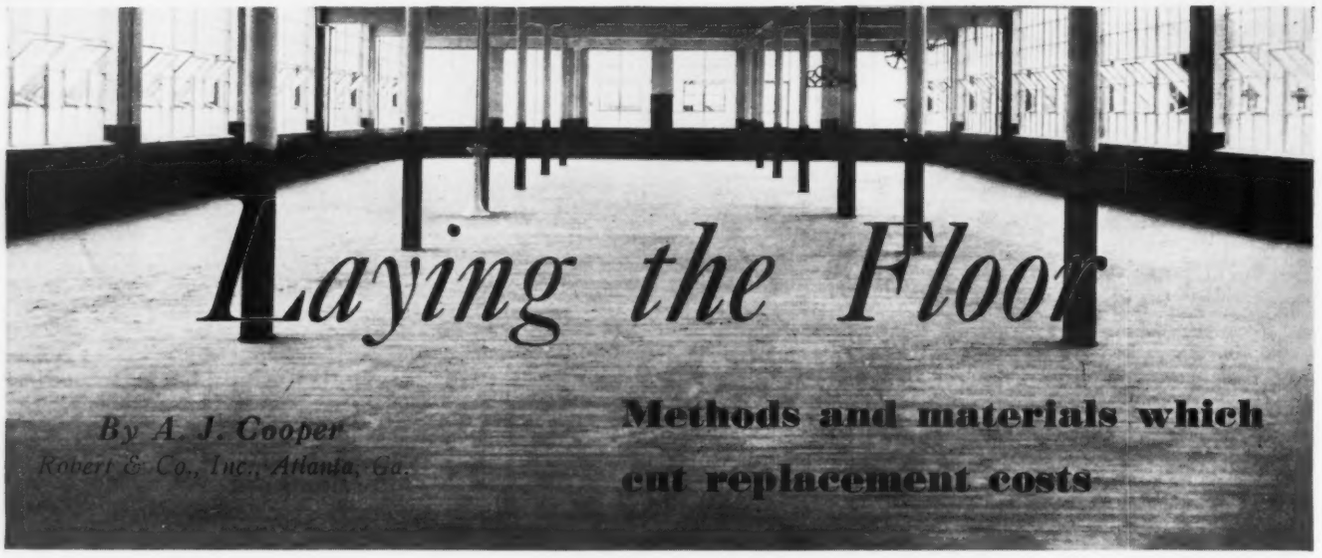
Samples 3 and 4 are the same cloth construction; and they were made in the same plant, but under conditions which have caused an apparent variation. The warp is indigo-dyed, regular run of production; and was originally, from a practical standpoint, undoubtedly the same. This does not mean that differences in color in the warps do not occur. The filling is stock-dyed and was originally of the same shade—at least, when used under suitable conditions it caused no differences in the appearance of the cloth. However, No. 3 cloth shows up less blue, or has more contrast between warp and filling than No. 4. The cause of the difference is the variable amount of color or dyestuff which has rubbed off from the warp through weaving. Since the cloths were not wet when finished, it should be apparent that the variation occurred previous to finishing.

Sample 5 has a dyed-yarn warp and a dyed-yarn filling of different shade. It illustrates how low quality in a chambray can be somewhat concealed by minimizing the contrast between warp and filling. If the color contrast were increased, even if accompanied by some improvement in yarn quality, it is likely that the effect would be less desirable. Again, the fact should not be overlooked that many fabrics are criticized not because they are worse than those made previously, but rather because they are different.

Sample 6 is a good illustration of the effect which is produced in a fabric, where there is a decided color contrast, when the yarn varies in size. Examination of this cloth will show that there are numerous places where the filling is larger than normal and other places where it is smaller than normal. The color relation varies with relative weight of warp and filling at any particular point.

This particular defect has been caused by sprung bottom rolls on the spinning frame, a condition which is likely to make a radical variation in yarn size. A very few sprung rolls, either on the fly frame or spinning frame, but especially on the latter, can create enough trouble in the cloth room and force enough cloth cutting to add decidedly to the cost of production and more than justify the small expense of keeping machinery in the best possible condition.

The illustrations given should indicate clearly some of the difficulties and problems which exist in chambray production and which in all fairness should justify a reasonable profit margin.



Laying the Floor

Methods and materials which cut replacement costs

By A. J. Cooper
Robert & Co., Inc., Atlanta, Ga.

IF we except the roof, the floor is practically the only part of a textile mill which is subjected to wear and tear by the operation of the plant. The constant abrasion to which the floor is subjected causes this to be the largest item of maintenance except roof repairs and painting. Since replacement of flooring is at best an inconvenient and annoying job if done while the plant is in operation, these replacements should be reduced to the minimum by giving proper thought to the types of flooring which will best accomplish the result desired. It is safe to say that the one most desirable quality in 90% or more of industrial floors is resistance to abrasion. Other factors which must be considered are resistance to rot or disintegration; ability to withstand acids, heat, cold, or moisture; resilience; ease of refinishing, etc.

It has long been an almost universal rule to build textile mills with wood floors. The wood sub-floor presents advantages possessed by practically no other material. Chief of these are low cost; lightness; resilience; and the ease with which machinery, piping, and other equipment may be anchored to the floor. There are drawbacks, too, to the use of wood sub-floors, but in general, they are outweighed by the advantages. For surfacing these sub-floors, maple is widely favored as it embodies to a considerable extent the qualities desired. Maple is weak grained, which is necessary to prevent splintering; it is reasonably long wearing; it is resilient; and it may be finished to any desired degree. Ordinarily, textile mill floors are not treated at all or are given one or two coats of oil, floor oils which combine linseed and tung oils being favored. Oiling assists in keeping dirt, grease, and water on the surface of the plank, so that they are more easily removed than if allowed to soak into the fibers.

Maple flooring is ordinarily furnished in three grades. First grade is in lengths of 2 to 16 ft., with not over 25% in lengths up to 3½ ft. Second grade is in lengths of 1½ to 16 ft., with not over 40% in lengths up to 3½ ft. Third grade is in lengths of 1 to 16 ft., with not over 60% in lengths up to 3½ ft. Second grade is usually specified for industrial plants, as representing a mean between the high cost of first grade and the shortness of the pieces in third grade. Maple flooring should be used in the standard dimensions of 13/16 x 3½ in. Narrower widths than 3¼ in. are sometimes used, and are somewhat cheaper, but the saving in cost is usually made up by the extra waste and the increased cost of laying. The planks should be planed with hollow back, to prevent cupping, and tongued and grooved on the ends of the pieces only. Making the edges square greatly facilitates removing and relaying a portion of a floor which has become worn. It also allows the plank to be worn down thin before replacing without having the splintering caused by the tongues and grooves.

Wood flooring should, in general, be laid with the planks running in the same direction as the majority of the trucking aisles, so that there will be as little trucking across joints as possible. It should be face-nailed in diagonal rows 12 in. apart, with two nails in each plank, using special case-hardened flooring nails. Setting the nail heads is an added refinement, which improves the floor, but adds somewhat to the expense. Under the wood finish should be a layer of waterproof paper.

There are certain points of major importance which should not be overlooked in laying a maple floor.

1. Hard northern maple, cut in Michigan and Wisconsin, will give noticeably longer wear than the softer southern maple. However, the latter often makes the better looking floor, and its softness permits the planks to be forced up tightly together, whereas the cracks due to warping in the boards are often difficult to close up in the northern maple.

2. Maple flooring should be bought kiln-dried. As a result, it frequently arrives on the job with considerably less than the normal amount of moisture. If laid immediately, before it has time and opportunity to absorb moisture from the atmosphere, it will swell considerably after installation, resulting in bucking up of the floor, as well as possible damage to the structure. The force exerted by the swelling of wood as it absorbs moisture is sufficient to crack the exterior walls of many buildings.

The best procedure is to stack the flooring loosely in an open building, where it will be exposed to circulation of air, but not to direct rain, and allow it to absorb its natural percentage of moisture from the air. This will take one to four weeks, depending on the dryness of the weather. Some people make a practice of wetting the flooring before laying, but this is likely to result in the absorption of too much moisture, and the subsequent drying out after laying will cause large cracks between the boards, and sometimes causes serious cupping. A space of at least 1 in. should be left between the edges of the flooring and the walls to allow for expansion. Many brick walls have been cracked as a result of failure to take this precaution. The space between the floor and the wall can be covered with a 1x3-in. beveled wood strip.

3. When maple flooring is laid on creosoted sub-flooring, which is frequently done on first floors where laid directly on the earth, the creosote sometimes bleeds out, soaking up through the finished flooring, and appearing on the surface

as a black, sticky substance. This may be avoided by using a non-bleeding treatment in the creosoted plank, and by seeing that the maple has its proper moisture content when laid. Where either of these precautions is impossible, the use of a waterproof building paper under the finished floor is advised.

4. A shipment of maple flooring is sometimes found to contain pieces of beech and birch flooring. These woods are not nearly as durable as maple, and should not be used in mill floors if maximum wearing qualities are desired.

Next to wood, the most important material for flooring in textile plants is concrete. In textile mills, concrete floors are most often found in dye-houses, opener rooms, slasher rooms, boiler and engine rooms, stair and toilet towers, warehouses, and occasionally picker rooms and other departments. Wear in concrete floors is a more difficult problem than in wood, on account of the nature of the materials involved.

There are two practical methods of refinishing worn concrete floors. One is by applying a new cement finish over the entire slab; the other is to patch the worn areas with an asphalt mastic. The later method is often advised where the wear has been more or less localized, resulting in holes or worn areas, with the adjoining slab in good condition. When patching with asphalt mastic, it is not necessary to resurface the entire floor. Another advantage is that the floor may be used within 24-hours after patching. The asphalt mastics are in general mixtures of asphalt emulsions, portland cement, and aggregates, in varying proportions. They should never be used where the floor is subjected to hot water, steam, or other source of abnormal heat.

In obtaining a good cement finish on a concrete floor, whether over a new or old base slab, the problem is to get a hard, dense, smooth surface, thoroughly bonded to the base. If an old slab, it must be carefully cleaned and scarified, so that the surface is made good and rough for the bonding of the finish. The slab is throughly roughened by picks or similar tools, wet down, allowed to stand a short while, and then a grout of neat cement is scrubbed into the surface, using stiff brushes. The surface is then ready for the topping. This is usually applied about 1 in. thick, of a 1:2:2 mixture of portland cement, sand, and granite chips. This is screeded off, floated with wooden floats, and steel-troweled.

Following are the essentials for getting a good finish:

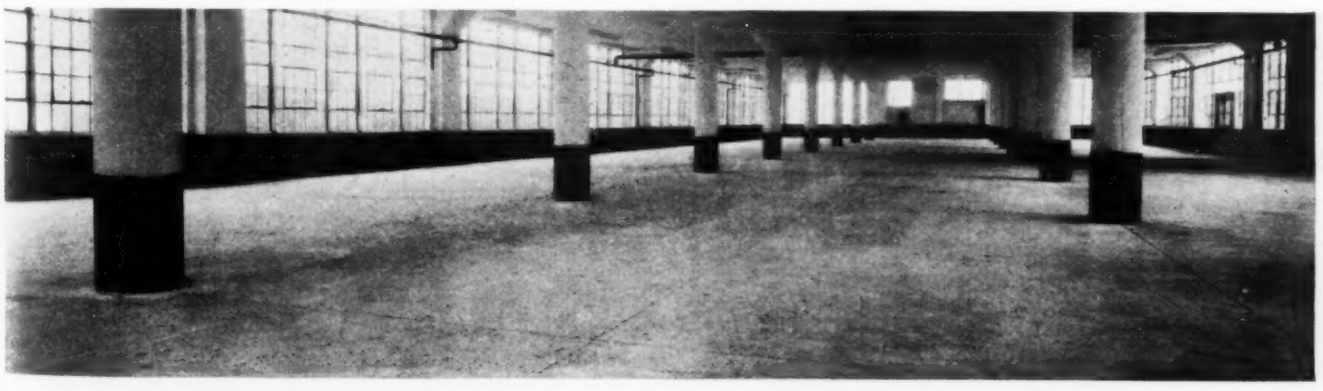
1. Thorough roughening and cleaning of the base slab.
2. A properly proportioned mix, with good aggregates.
3. Rigid control of the water in the concrete. Too much water has a decided weakening effect on concrete. It is, of course, impossible to pour concrete in which has been mixed only enough water for proper hydration of the cement. The excess, however, which is added for plasticity, represents a weakening agency. It is desirable, therefore, to keep this excess water to a minimum.
4. Careful workmanship, by experienced mechanics, and under supervision of a foreman who knows how to lay good floors.

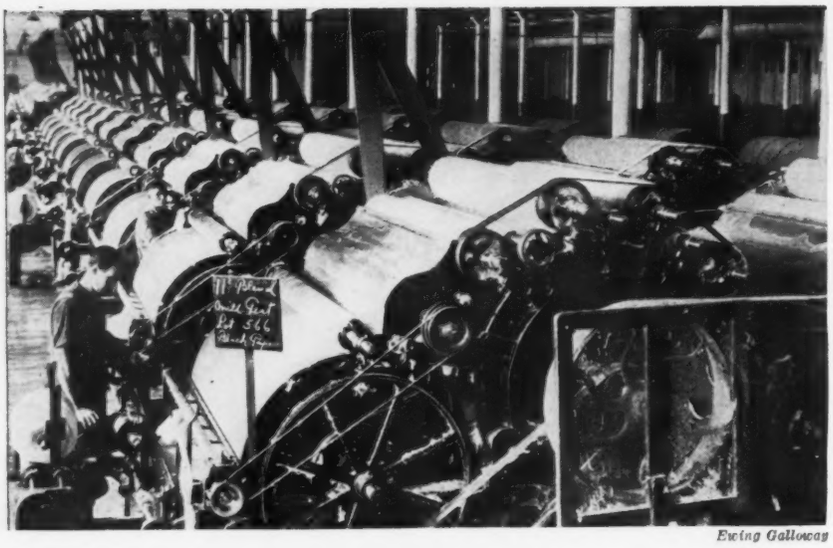
Use of integral and surface hardeners is some advantage. There are various types, the principal ones being the metallic hardener, the integral chemical hardener, and the liquid surface hardener. The metallic hardeners consist essentially of minute particles of iron, sometimes combined with other materials, which are troweled into the surface of the green slab. The oxidation of the iron is supposed to fill up the minute voids, making the floor more dense. The liquid integral hardeners accomplish the same result by chemical combination with some of the elements in the cement. They consist of chemicals which are mixed with the gaging water in the topping. The surface hardeners consist of chemicals which are dissolved in water and flushed over the top of the finished slab, after it has set up. Most of them consist essentially of magnesium fluo-silicate, either in crystal form or in solution, and the user can sometimes save money by buying this chemical by name. The application of this material will help to keep down dusting, but has to be repeated at intervals of six months to two years. The cost, however, is small.

By far the most important factors in the wearing qualities of cement finishes are the rigid control of the mix and compacting the surface to prevent voids. Several companies have developed individual methods for accomplishing these results, and have developed systems of application of floor finishes which result in obtaining maximum wearing qualities. Some of these impart a certain resilience to the concrete by adding wood particles to the aggregate. Generally speaking, floor finishes applied by these specialists will last considerably longer than one applied by the ordinary "cement finisher."

The question of expansion joints in concrete floors is a debatable one, and no positive theory has been developed for determining their frequency or character. Pavements on earth should probably have joints, if exposed to extremes of temperatures. Interior floors on earth are sometimes poured without joints, where the temperature is kept fairly even. The safest plan, however, is to provide joints at 12- to 20-ft. centers on exterior slabs and 20- to 40-ft. centers on interior slabs, unless special conditions dictate otherwise. This does not apply, of course, to self-supporting slabs, where structural factors determine the location of expansion joints.

There are other miscellaneous types of floor surfacings, each having a more or less limited application. For instance, a floor of end-grain, treated-wood blocks laid in coal tar pitch on a concrete base is good for machine shops or other places where the floors are subject to shock and very heavy wear. A finish of quarry tile is excellent for toilet rooms in industrial plants. These and other types, however, have only a limited use in textile mills.





Ewing Galloway

Worsted Neps . . .

Where caused and how eliminated in carding

By Frederick B. Hudson

NEPS in the slivers from worsted cards can be avoided by the correct setting and speeding of the machines and the right treatment of the raw material.

Soft-handling wools, such as fine domestic merinos from Idaho, Australian merinos from Victoria, and Patagonian merinos from South America, are more prone to nepping than the stouter and firmer types of wool.

Great care should be taken to have these wools free from wool fat when they enter the card. Scoured wools which retain a "sticky handle" always nep in carding, because the short fibers are rolled into balls without being opened out. The best remedy for this trouble is to employ more alkali in the early scouring bowls and give the wool a good "soaping" in the third bowl and a clean rinse in the last bowl.

Heavy feeding also causes neps in short, fine wools. When this material is being carded, the workers have plenty to do and should not be overloaded. A good plan is to watch the wool on the first worker of the first cylinder; and if this cards the wool in tufts and patches, the speed of the feed rollers should be reduced until a satisfactory delivery is given.

In many cases it is desirable to speed up the workers when dealing with soft wools of this nature and at the same time increase the speed of the strippers. The strippers should, of course, be made to run fast enough to clear the workers completely, but without dragging the wool.

Setting these rollers needs a considerable amount of experience and skill in the carding of this type of wool. The workers need a close, keen action; but at the same time they must not be allowed to choke. As a general rule, a 30s gage between the worker and cylinder will give a desirable setting, while the stripper can be set with a 28s gage to the worker and a 26s gage to the cylinder.

The wool on the first cylinder should be examined to see if the neps are caused between the fancy and the doffer. A careful examination of the card often reveals that the neps are caused by faulty setting of the fancy.

Some fancies roll the wool instead of lifting it, while others do not lift it far enough up the pins for the doffer to remove it. This wool beds into the cylinder and causes the new wool coming on the top to be made into neppy slivers.

Next to the fancy, the doffer is the greatest nep-making roller of the card. In setting the doffer for these wools, it is desirable to place it nearer to the cylinder than the workers. In many cases a 34s and even a 36s gage may be used.

Doffer speed also plays an important part in reducing the neps in carding a fine wool. The doffer should remove all the wool lifted to the tops of the cylinder pins by the fancy; but in those cases where the doffer is not moving fast enough, some of this material is not removed and is taken around to cause more neps at the workers. Faster doffers mean thinner slivers, but this can be remedied by running the slivers from two cards into one can by the coiler motion.

Frequent stripping of the card pins is essential when these wools are being carded. In some cases the pins get choked up after running for 10 or 12 hr., and another stripping is necessary. It is a great mistake to attempt to carry on with choked-up pins, because they are a prolific cause of neps.

Looking at this problem from a production point of view, it does not pay to make neps, because neppy slivers only make more noil for the combs to remove. Should the combs fail to remove them, the neps go into the top and reduce its value. It takes one hour in ten to strip a card on these wools. If this time is not given, the production may be increased by 10%; but the product will be worth only about two-thirds the value of a first-class line.

Establishments dealing with these wools may find it advantageous to double the stripping team so that the stripping time can be reduced by half and the number of cards stripped each day can be doubled.

When steel combs are used, frequent stripping tends to damage the foundation of the card clothing. Therefore, when fine wools are being carded, which necessitate frequent stripping, hand carding boards should be used, as these are not so liable to tear the foundation.

Finally, but not the least important, fine wools cannot be carded to their highest perfection by rough pins. Well-ground and highly polished pins are essential. It is not advisable to strip more than three times without grinding when these wools are under treatment. In fact, after the second stripping the carder should try the pins of the workers to see if they will stand another run. Should the pins be out of tune, it might be advantageous to grind and not risk neppy slivers by a third run.

It's Like the Weather,

This tension problem in most underwear mills

By Louis G. Goldenberg

ON FINE-GAGE underwear knitting machines the tension at which the yarn is fed to the needles may make the difference between smooth-running perfect cloth and poorly running cloth with an excessive variation in yield and streakiness and a prohibitive number of imperfections. Still, in most mills, tension, like the weather, is something about which a lot is said but little done. There are two excuses advanced for this neglect, and one cannot truthfully say that they are entirely unreasonable. First, so many things can and do affect the tension that it seems almost impossible to bring about any high degree of uniformity; and, second, knitting machines operate, apparently satisfactorily, within such great extremes of tension that it sometimes seems unnecessary to maintain complete uniformity.

Following is a formidable array of the common causes and conditions affecting tension, with some suggestions for their control. We have in mind primarily the problems of the small mill which does not prepare its own yarn.

1. Kind of yarn.

2. Condition of yarn.

With respect to the first two factors, we cannot alter the physical characteristics of yarn we have purchased.

3. Size of yarn package and type of wind.

When we buy yarn on cones, we cannot dictate the size of the package and the type of wind; and, regardless of the original size and wind, the tension varies from the full to the empty cone.

4. Amount and kind of oil in yarn.

5. Age of yarn.

Different oils and different times of ageing with the oil in the yarn produce different coefficients of friction, which are responsible for variations in the yarn as it runs over and through the guides—another factor not entirely controllable by the small mill.

If the first five factors are to be controlled, for a particular type of fabric one kind of yarn should be used. If there are two or twenty machines on one number, the same yarn should be used on all the machines. If viscose-process rayon is used, for example, it should all be from the same source.

6. Atmospheric conditions.

Where a mill is properly air-conditioned, the humidity and temperature of the air can be kept constant—eliminating one very important cause of tension variation.

7. Type of stop motion.

In most mills it is not uncommon to find several different types of stop motion on the same kinds of machines. If it is impractical to correct this situation entirely, an effort should be made to have the same type on all machines of the same size. For example, 18-in. machines might be assigned one type, 20-in. machines another, and so on.

8. Number and kind of yarn guides and frictions.

These should be alike on all machines. Each type, because of its construction, material (that is, metal or porcelain), and the point at which it controls the yarn, produces a different tension on the yarn; and this influence is supplemented by additional tension rings, springs, or other devices.

9. Method of threading the yarn through the various guides and friction devices.

The method should be uniform for all machines making the same fabric. The threading is the responsibility of the one who sets the machines and should never be altered by the operator who runs the machines.

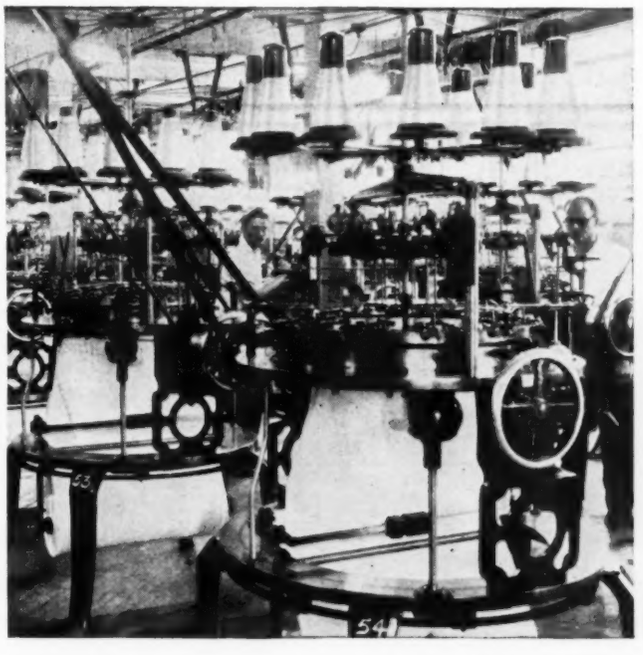
10. Speed of machine.

All the machines should run at the same speed and there should not be too much variation between day and night operation. Although this matter of machine speed is not the most important factor affecting tension, it must be given consideration.

11. Length and type of stitch.

These are constant for any particular style or pattern, of course. Variations affect the tension problem by causing the yarn to be absorbed more rapidly or more slowly. All feeds should be uniform in this respect.

Just what the tension should be must be determined by experience and the conditions under which the fabric is knitted, but opinions always differ on this point. Whatever the tension, however, it should be maintained as uniform as possible; and all efforts directed to this end are worth while.



But Woolens Vary . . .

Demanding occasional change in rules for yarn diameter and cloth setting

By Joseph E. Martel

TABLE OF CALCULATION RESULTS

Cloth	Warp or Fill.	IN LOOM Run	Dia.	No. of Threads	No. of Inter.	Comp.	FINISHED Run	Dia.	No. of Threads	No. of Inter.	Comp.
Thibet.....	Warp	4.75	74	31.6	21	.70	5	76	45.9	30.6	1.05
	Fill.	5	76	40	26.66	.886	4	68	44.44	29.6	1.04
Cassimere.....	Warp	4	68	35	23.33	.858	4.35	70.9	43	28.6	1.03
	Fill.	4	68	40	26.66	.98	3.83	66.5	43	28.6	1.05

Fabrics made with three-end warp-flush weave

AS THE result of study and experimentation on the subject of the article by R. A. C. Scott in the May, 1934, TEXTILE WORLD ("Doubtful Diameters"), I find that Mr. Ashenhurst's formula for woolen-yarn diameter—namely, "the square root of the number of yards per pound minus 15%"—is accurate for practical purposes on all-wool yarns; but in the case of substitute yarns, some modification is necessary. For example, it is not logical to expect that calculations based on yards per pound will give the same diameter for an all-wool yarn which contains about 15% of oil, moisture, and impurities, as for a shoddy yarn which contains about 25% of such foreign material. I have found inaccuracies resulting from this factor which would make a difference of 1½ to 2 threads in a plain weave. Of course, for yarns of the same class the calculated diameters bear a constant ratio to each other; and once the actual diameter of one of the new yarns is determined, the formula can be modified to suit the new class of material.

At first thought, other factors than fiber content might be expected to cause errors in the diameter calculations—such as the failure of certain types of fiber to pack in as tightly as other types, thus giving a thicker appearance to the yarn. Again, short-fiber yarns, which require higher twist might be expected to influence the result. Experience has shown, however, that, although these factors do affect the appearance of the yarns, they do not cause any serious inaccuracies in the Ashenhurst calculations—at least, in so far as those calculations are employed to predetermine cloth settings, in which case they are, and are intended to be, merely guides for supplementing the experienced judgment of the fabric designer.

If we may assume now that we have determined the yarn diameters accurately either by means of Ashenhurst's original formula or by a modification of that formula, we are likely to find a modification necessary in the Ashenhurst method of applying those diameters to finding the ends and picks which are to be inserted in the fabric. This is because we must allow for the finish to which the fabric will be subjected.

For instance, take two fabrics of the following constructions: a thibet having 2,560 ends (not including listing) of 4¾-run yarn, reeded 10½/3, and shot with 40 picks of 5-run (81½ in. plus 1½ in. listing gives 83 in. for width in reed); and a hair-line cassimere having 2,400 ends (not including listing) of 4-run yarn, reeded 8¾/4, and shot with 40 picks of 4-run (68½ in. plus 1½ in. listing gives 70 in. for width in reed). The thibet will come from the loom more open and sleazy than the cassimere, because the yarns are finer and there are less ends; but the finished thibet will be compressed about the same as the cassimere and will appear compressed even more, owing to the extra fulling and felting that it will receive. We show this mathematically in footnote below.*

The changes which these two warp-flush fabrics experience between loom and finished piece can be seen conveniently in the accompanying table; and it will be recognized that a slight change in ends, picks, or weight would cause an appreciable difference. An increase or decrease of only two ends or picks, for example, has been found in such cases to cause a remarkable change. In many fabrics, of course, such a variation would have little effect.

Many of the successful woolen designers use some method of determining yarn diameters, and they base cloth settings on them. One designer of my acquaintance winds the yarn around a ruler and, with his knowledge of structure and processing, can determine how many ends and picks will be required for a satisfactory fabric. Most designers will find guide rules preferable, and for such men Ashenhurst's rules can be recommended.

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*Since the yarns are all wool, the original Ashenhurst formula can be relied upon to give the diameters in the loom (that is, of course, the reciprocal of the diameters in inches). Thus in the case of the thibet—

$$\text{Warp: } \sqrt{1600 \times 4.75} - 15\% = 74 \text{ (or } 1/74 \text{ in.)}$$

$$\text{Filling: } \sqrt{1600 \times 5} - 15\% = 76 \text{ (or } 1/76 \text{ in.)}$$

We have enough information about these fabrics to permit determining the compression to which their yarns are subjected on the loom and in finishing. For example, we know that there are 31.6 ends per inch in the thibet warp on the loom, while 74 of such ends could be laid side by side in an inch. Also we know that the filling intersects 21 times with the warp and that 76 filling threads could be laid side by side in an inch.

$(31.6 \div 74) + (21 \div 76) = .70$, or 70% warp comp.

$(40 \div 76) + (26.66 \div 74) = .886$, or 88.6% filling comp.

In such calculations the warp compression is widthwise of the goods, while the filling compression is lengthwise.

The cassimere is 4-run in both warp and filling; and by the same series of calculations is found to have a yarn diameter of 1/68 in., a warp compression on the loom of 85.8%, and a filling compression of 98%.

In the finishing both fabrics lose about 15% in weight on account of oil, impurities, etc. The thibet is crimped about 10%; and the cassimere, about 7%. Both fabrics are finished 57 in. wide 56 in. inside of listing. This will result in more of a change in the thibet than in the cassimere.

A loss of 15% in weight with a 10% crimp means a decrease in yarn size of 5%, bringing the run of the finished thibet warp up to 5-run, which has a diameter of 1/76 in. The warp of the cassimere becomes 4.35, with a diameter of 1/70.9 in.

With respect to the fillings, the thibet yarn loses 15% in weight and the fabric shrinks from a loom width of 83 in. to a finished width of 57 in. Therefore the new yarn size is $5 \times 1.15 \times (57 \div 83)$, or 4-run, which has a diameter of 1/68 in. By a similar calculation we find the finished filling of the cassimere to count 3.83-run and to have a diameter of 1/66.5 in.

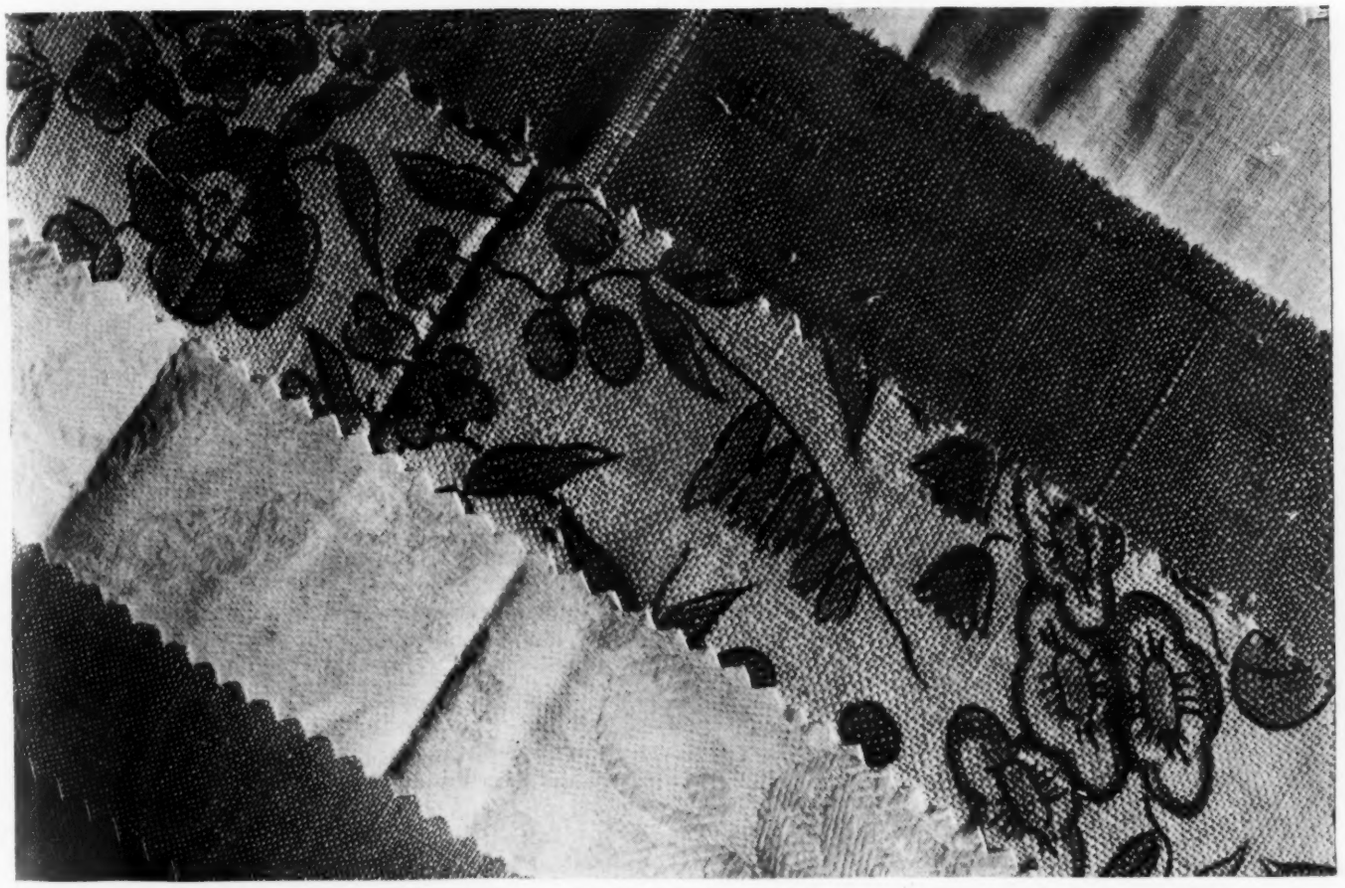
The finished thibet will have $2560 \div 56$, or 45.9, ends per inch, and $40 \div .9$, or 44.44 picks per inch; while the finished cassimere will have $2400 \div 56$, or 43, ends per inch, and $40 \div .93$, or 43, picks per inch.

Employing the same factors as before—that is, yarns per inch, intersections per inch, and yarn-diameter reciprocals—we find that the finished thibet has a warp compression of 105% and a filling compression of 104%, while the finished cassimere has a warp compression of 103% and a filling compression of 105%.

Cotton and bast fibers combined successfully in

Merlin Fabrics

By J. Guthrie Oliver



The broad range of purposes to which these fabrics have been adapted is self-evident. They have a close semblance to linen. One of the samples has been rubberized for raincoat use.

SINCE the early part of this century many attempts have been made to develop a method whereby one or another of the bast fibers could be handled on ordinary cotton machinery. In almost every case these schemes have proved abortive and have soon been forgotten.

An exception is the Gminder process. First announced about eight years ago, this process for degumming, decorticating, and cutting flax and other long-vegetable fibers has been constantly improved and has led to commercial production a few months ago of "Merlin" fabrics. These fabrics, which are now being made by Lintex, Ltd., an allied company of Rylands & Sons, Ltd., well-known British textile manufacturer, are already available in such constructions as damasks, towelings, dress goods, casement cloths, sheetings, pillow casings, and suitings. A representative of Lintex, Ltd., is now in Canada investigating the feasibility of starting manufacture of Merlin fabrics in the Dominion.

Merlin fabrics are now being produced in three mills, and are selling at prices substantially below those asked for ordinary linen goods. It requires an expert to tell that Merlin fabrics are not produced from linen in the normal way. In general, Merlin fabrics have the same aristocratic appearance of linen, but with some of the harshness removed. They do not crease as readily as standard linen productions and have high absorptive properties. Moreover, they have already shown themselves capable of withstanding hard wear and of washing well. Fast colors are used in dyeing and printing.

The Gminder process (TEXTILE WORLD, Nov. 19, 1927, p. 35) may be said to consist of two main divisions. The first covers the extraction of fiber—by mechanical means and without retting—from flax, hemp, linseed straw, or from tows with a shorter staple than can be used by linen manufacturers. The second section covers the refining and mixing of the bast and cotton fibers and their spinning, weaving, dyeing, and finishing by cotton machinery. One of the reasons for the success of the process appears to be that, since the two fibers are mixed intimately in the fiber stage, a more homogeneous fabric is obtained than is possible by twisting linen and cotton yarns together or weaving the fabric with a cotton warp and linen filling or *vice versa*.

Premature oxidation of bath is greatest danger in

Vat Dyeing of Crepons

By A. J. Hall

WITH the continuing popularity of crepe fabrics of various types has come a renewed interest in the cotton crepon which was in vogue several years ago. This fabric makes an attractive dress material when printed in large floral designs or plain-dyed in pastel shades. The most recent development in processing cotton crepons—the use of vat colors in dyeing—has greatly increased the serviceability of the material, but calls for extreme care on the part of the dyer.

The first step in finishing these goods is to singe them on a gas singer, singeing on the face only being sufficient as a rule. Next they are passed through a dilute solution of soda ash which is maintained at the boil. Preferably, this scouring is conducted in a rope washing machine. During this boil, the size and other impurities are removed from the fabric, and at the same time the highly twisted filling yarns shrink and set to give the goods their characteristic crinkled or wavy appearance with the crinkles quite long and parallel to the warp. It is the practice in some mills to employ soap or another detergent in conjunction with the alkali. In any event, it is essential that the boil-out be thorough if uneven bleaching and dyeing are to be avoided. Shrinkage of the fabric to about one-fourth of its original width takes place while the goods are being scoured.

Peroxide or Chemic Bleach

The fabric is washed well with hot water, rinsed with cold, and is now ready for bleaching. Either the peroxide or the chemic method of bleaching can be employed, and in either case can be carried out in the same equipment as was used for scouring. If sodium hypochlorite is used, the goods are treated until white in a solution containing about 0.5 g.p.l of available chlorine, washed, soured with dilute sulphuric acid, and washed. Souring is unnecessary if the peroxide bleach is used.

Dyeing, the next operation, ordinarily takes place in a reel dyeing machine, as the jig is not suitable for handling crepons. If the fabric is to be printed in discharge style, care must be taken to select dyes which are dischargeable to a good, clear white. Formerly it was the practice to dye these materials with direct colors, and no particular problems were entailed. Demand for fabrics which are fast to light and washing and the use of vat dyes have made the dyeing of crepons a ticklish job.

The chief difficulty in dyeing on the reel type of machine is that the fabric is frequently drawn out of the liquor and exposed to the air while it is being pulled over the reel. This condition is likely to cause premature oxidation of the color on the goods. In addition, the cloth carries a considerable amount of air with it as it re-enters the liquor. As a result, there is always danger that so much of the sodium hydrosulphite used in dissolving the color will oxidize to sodium sulphite that the bath will break down, throwing the dye out of solution to form a scum on the surface of the liquor.

Suitable Equipment

This danger can be reduced somewhat by having the reel set very close to the surface of the dyebath. A special type of reel machine—originally developed for dyeing vat colors on knitted fabrics—will be of even more assistance. In this equipment the large back reel has been replaced by a smaller reel, the back curve of the tub has been constructed in such a way as to reduce to a minimum the tendency of the goods to tangle, and the water overflows have been designed to permit rapid rinsing of the goods as soon as the desired shade has been obtained. Aside from the equipment, the addition of hydrosulphite and caustic to the bath at intervals during the actual dyeing helps to keep the vat color in solution. The exact amount of these chemicals to be added and the frequency with which the additions should be made depend on the volume of the dyebath, depth of shade, and other factors, and can be determined only by experience.

Another type of equipment suitable for dyeing cotton crepon with vat colors consists of a closed, perforated, cylindrical container. The goods are placed in this container and the dye liquor is circulated through it. With this machine there is practically no oxidation of the bath from the air. At present, however, many mills are not equipped with this type of machine.

After the fabric has been dyed, it is oxidized, washed, and soaped in the usual manner, and then is dried on dry cans or on a apron type of dryer. Finally the goods are tentered to the required finished width. It is advisable to steam the fabric well as it enters the clips of the tenter. A properly finished crepon should have a well-set, crinkled surface, without obvious cracks. The crinkles should be of fairly uniform size, and the fabric should have a moderately soft hand. As extreme softness is not desirable, it usually is unnecessary to employ a softening agent in finishing. On the other hand, undue harshness can be overcome by addition of a little softener to the last rinse water after dyeing.

We Asked Two Throwsters . . .

What limits the speed of twisting?

RECENTLY we asked two throwsters the following questions:

What factors limit the speed of twisting besides the ability of the spindle to stand up under abnormal number of revolutions per minute? In other words, if a spindle could be devised which would operate satisfactorily at a speed twice that now common, what other factors in the twisting operation would prevent the use of the high speed in increasing production?

Also, if it were possible to produce 100 turns per inch as economically as 65 turns per inch is now produced, would there be any applications or demands for the high twist? In other words, would such twists open up any new field in textile fabrics, or be of any benefit in the creping of fabrics of the present type?

The first throwster replied as follows:

"To operate a spindle twice as fast as at present at a constant speed and regular twist would require a different type of spindle, gear-driven mechanism, heavier frame, and a stop motion—all of which would more than double the cost. As the power consumption is in proportion to the square of the speeds, it would be quite excessive. The only saving that might be expected would be floor space, but this would be far offset by the increased cost of machine and power.

"It could not be belt driven, as any slight irregularity in the belt would cause the spindle to jump and cause irregular twist. The speed would be too fast to permit stopping the bobbin by hand to tie up a break, and starting would be too slow to produce regular twist.

"The excessive speed would cause silk of low cohesion to open when the bobbin is running idle on the spindle, as when the thread is broken, causing split thread, breaks, waste.

"A small defect would cause many breaks in places that would pass through without breaking on slow speed.

"A two-thread twisted 100 turns would create a torsion that would cause the thread to kink excessively and be unworkable unless sized. The high twist would cause internal strain and make the thread very weak.

"If it is possible to weave fabric from such yarn, which the writer doubts, it might creep on the shelves every damp day. By 'creep' I mean it would shrink in width."

The other throwster offered the following opinions:

"There are three things which govern tension and consequently stretch or take-up in all throwing processes:

"1. Drag, caused by the weighted supply package in winding or redrawing or by the flyer of the twister spindle.

"2. Angles or bends in the yarn between the take-off and the take-up spools.

"3. Speed of yarn and corresponding friction.

"Any one or a combination of these three is sufficient to affect the tension of the yarn being twisted, with noticeable results on the twist take-up and crepability in the cloth.

"Increased yarn speed will mean a take-up package of greater density with a corresponding increase in the difficulty of twist setting.

"A spindle speed twice the present, with its tremendous centrifugal force, would necessitate the use of higher twists on the doubler-twister, as well as the elimination of all but perfectly shaped spools. Furthermore cantons and rayons would not be available for a machine of this kind, because the centrifugal force would cause interferences between slugs and loose filaments and the thread being twisted.

"The rayon yarns produced today cannot be twisted above 75 turns per inch satisfactorily because the angle of twist is too great. Twists of 100 per inch are possible in silk crêpes, but these are hardly necessary in any of the cloths at present being produced, because almost any degree of crêpe can be acquired with present twists.

"However, it might be possible to utilize these high twists in combination yarns and novelty cloths."

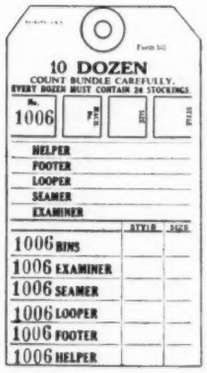
Hosiery Bags for gray-goods protection

By Milton M. Abrams
Ajax Hosiery Mills, Phoenixville, Pa.

THERE are a number of sound arguments to be presented in favor of handling gray goods in bags. The hosiery is, as usual, tied in bundles containing 24 stockings (of one size and style, of course); and either five dozen or ten dozen are placed in a bag. These bags can be made of ordinary cotton drill and closed by a draw string. A tag should be tied to the bag, identifying the style and size placed within. It may even be practical to have different styles in different-colored bags, in order that the styles may be easily and quickly identified.

The bag idea simplifies inventories to a considerable degree. How much easier it is to count ten dozen bags than ten one-dozen bundles of hosiery. The bag idea also facilitates the handling of hosiery throughout the different departments of the mill that process the gray goods. Careless handling of bundles results in pulled threads; bagging decreases this loss and so saves money for the mill. It likewise minimizes the possibilities of loss and theft. If a number system is installed with each bag, it can then be checked from department to department.

The legger holds his production until he has accumulated ten dozen. Then he hands in the ten dozen, and they are immediately checked and placed in a bag and a number tag tied to the bag. The type of tag used is illustrated herewith. There is a stub to be torn off for each succeeding department as the bag journeys on its way through the various "gray" operations. When the number tag is issued for the bag, it is immediately checked on the stockroom cards. When it is issued to a footer, it is accordingly checked on the card.



Sample of numbered tag for hosiery bag

Keeping one legger's work in a ten-dozen set and issuing it to one footer makes the work more uniform; and if the ten dozen is sent out in one dye lot, it will give a better yield for the finishing department, as the goods can be paired better and the work will match up easier.

As the work is handed in from the footer and then passed through the looping, seaming, gray examining, and gray-stock departments, it is checked in and out. Each department is responsible for the ten-dozen bag until it is checked out. Each department head has a check card with all the issued bag numbers on it, and each bag is checked in and out of the department by the head of the department or the stock clerk. An inventory can then be competently and quickly checked by verifying the open numbers on these cards against the ten-dozen bags in the department. Shortages can be quickly detected.

Hosiery bags are worth a trial.

Methods for developing highest degree of

Braider Flexibility

By Edwin J. Gibbons
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MOST round braiders may be changed to the flat type with little difficulty. The procedure depends upon the make of the braider and whether or not the machine was originally intended to be interchangeable. In general, however, a round braider may be changed to the flat type by removing, usually from the front of the machine, two or more horn-gears (thus interrupting the circular train), and then replacing the next succeeding horn-gear on either side (the two remaining outside gears) by two special horn-gears. If the gears removed are 4-horn gears, the replacement gears which are to act as terminal gears both may be 5-horn gears, both 6-horn gears, or one may be a 5-horn gear and the other a 3-horn gear; the selection depends upon the number of carriers to be used and the type of stitch desired. Because of the greater or lesser diameter of the replacement gears, they are usually fitted with, and revolve on, eccentric bushings, thus permitting the use of the regular borings in the bottom plate of the machine.

If the stitch in the required braid is the regular two-over-two-under stitch and an odd number of carriers is to be used, two 5-horn terminal gears must be employed and three or more carriers must be removed, depending upon the type of braider and the number of lines required in the braid. Thus, in converting a regular 24-carrier round braider to a flat braider, the maximum number of carriers that would be employed is 21, which will produce a 5-line braid. From this point the number of carriers may be reduced by pairs, leaving 19, 17, 15, etc., down to a minimum of 7 carriers for most regular braiders. In general, the number of carriers used to produce a flat braid is a multiple of 4, plus 1; *e.g.*, 21, 17, 13.

If the regular stitch is required and it is desired to have the total number of carriers even, one 3-horn terminal gear and one 5-horn terminal gear must be employed. In this case at least four carriers must be removed, and further reduction in the number of carriers may be effected in pairs. If the basket stitch is required, 6-horn terminal gears must be installed, and the number of carriers must be even. Obviously, the gears that are to act as terminal gears should be the same type of horn-gears (*i.e.*, high or low) as the gears which they are to replace.

In addition to removing a number of carriers and replacing the outside (terminal) gears with special horn-gears, one must change the quoits corresponding to the replacement gears and install stop quoits. The substitute quoits, together with the stop-off quoits, return the carriers in the same direction from which they approached the respective terminals. Fig. 1 shows the different parts involved in converting one type of round braider to a flat braider.

Some braiding machines are manufactured with the interchangeable features incorporated; when so constructed, the change-over operation is simple. If the machine is delivered as a round braider, the two 4-horn mongrel gears, with which the machine is regularly equipped, may be replaced by 5-horn gears. At the same time, the respective terminal quoits are replaced by the necessary change-quoits, and the proper change-buttons are substituted. With this style of machine, the maximum number of carriers that can be used to produce a flat braid will be one more than the number of carriers used to produce a round braid. Fig. 2 shows the front portion of the interchangeable type of braider set up as a round braider, and Fig. 3 shows the same machine set up as a flat braider. Figs. 1, 2, and 3 illustrate the methods employed with the New England Butt Co. braider and are used by courtesy of that company. The same principles are involved, however, with similar types of braiders of other makes.

Flat Braid to Round

The process of changing the machine illustrated in Figs. 2 and 3 from the flat type to the round type is just the reverse of the process described for changing from round to flat. In this type of machine the round braider will have one less carrier than the flat braider.

Ordinarily, it is not practicable to convert a small, old-type, regular flat braider to a round braider, as the expense involved is usually all out of proportion to the saving over the cost of a new braider. It would be necessary to have the old top-plate cut away, or to have an entire new top-plate made and installed. The two terminal horn-gears also would have to be removed and replaced with enough special gears to complete the circular train of horn-gears; and the terminal quoits would have to be replaced by special quoits. In addition, of course, the necessary number of carriers would have to be added.

The number of carriers in a regular flat braider may be reduced by installing the proper terminal gears at the point at which the change is desired, and employing stop-off quoits and terminal quoits as shown in Fig. 1. In making these alterations, however, one should take care that the proposed changes will cause no interference with the driving mechanism.

It must be understood that a reduction in the number of carriers in a flat braider will not alter the production in yardage for any given length of time so long as the number of stitches per inch remains unchanged; but the production in poundage will be reduced in proportion to the number of carriers employed.

Braider Speeds

No specified speed can be advocated for any particular braider or type of braider. Much will depend upon the character of the product, the type of carrier used, the kind of material, the efficiency of the operator, etc. However, the highest rate of speed, commensurate with quality, should be maintained at all times; to this end, the driving belt should be free from oil and grease.

If more than one type of material is being produced on a line of braiders being driven from a single shaft, it may not be advisable to change the speed of the shaft for the sake of one kind of goods; but changing the driving pulley of any particular braider should not be considered as time wasted.

One of the larger braiding-machine manufacturers recommends 288 stitches per minute as a safe speed for all products, and states that this rate may easily be increased from 10 to 25% by the use of special carriers or attachments.

Some types of braiders, when equipped with special carriers, and using good quality yarns, may attain a speed of 500 stitches per minute. On the other hand, especially in flat work where rayon or glazed yarns are employed, the best quality goods will be produced at a speed far below the 288 mark.

The best method of computing the speed of a braider is by the number of stitches per minute, not by the number of carrier revolutions; and the easiest way of calculating the stitches per minute is by counting the handle revolutions per minute. This can be done by holding a watch in the left hand and extending the loosely opened right hand so that the fingers will be lightly tapped by the revolving handle. The stitches per minute may then be determined by the following equation:

$$\frac{\text{Rev. handle per min.} \times \text{teeth in driving gear}}{\frac{1}{2}\text{ number of teeth in regular horn-gears}}$$

For example, when the driving gear has 32 teeth, the regular horn-gears have 40 teeth, and the number of handle revolutions per minute is 200, there would be 320 stitches per minute.

The carrier speed, if required, can be determined by the following equation:

$$\frac{\text{Rev. handle per min.} \times \text{teeth in driving gear}}{\frac{1}{2}\text{ number of teeth in regular horn-gears} \times \frac{1}{2}\text{ number of carriers used}}$$

Thus, if the braider used in the preceding example is a 16-in. carrier machine, the carrier speed would be 40 r.p.m.

Fig. 4 shows the relative location of the gears referred to in the foregoing calculations in a common type of braider.

Braiding machines require very little power. With properly hung shafting, and braiders that are well lubricated, the number of carriers per horse-power may range from 500 to 700. This includes any necessary traverse motion, but no other auxiliary machinery.

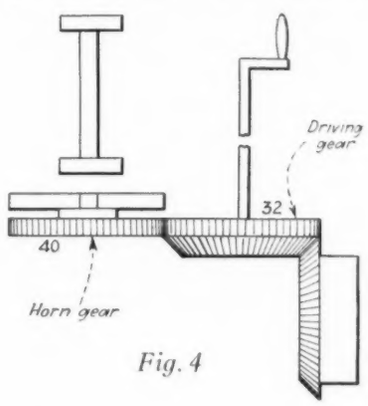


Fig. 4

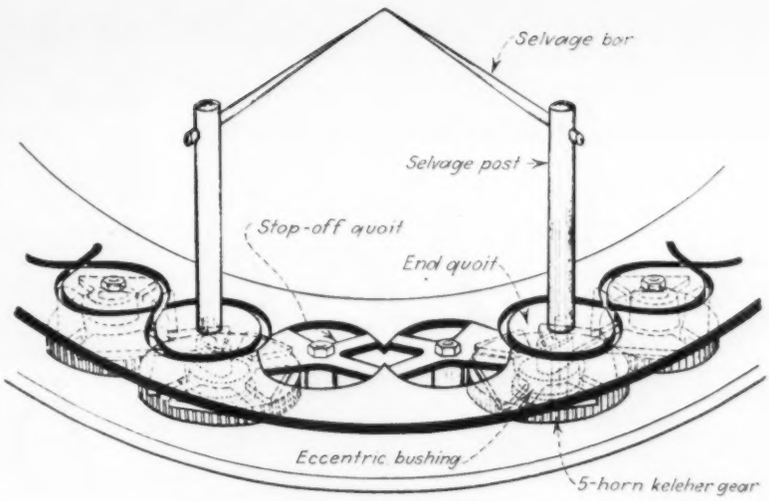


Fig. 1

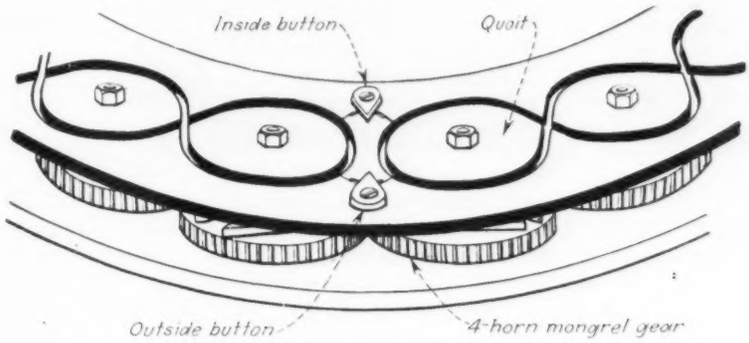


Fig. 2

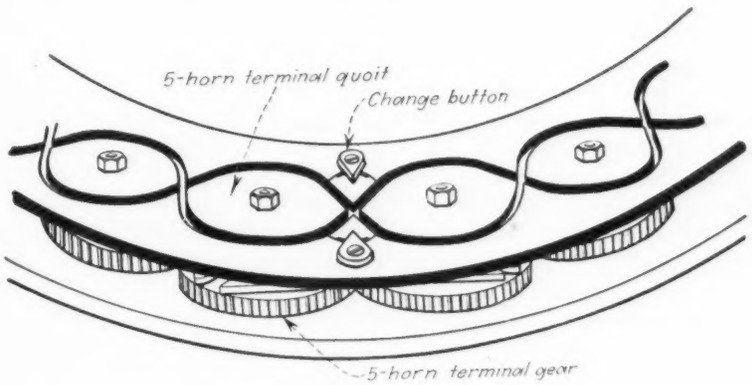
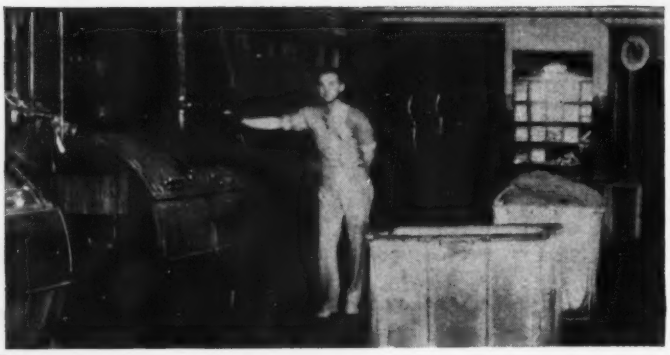


Fig. 3

Carriers Per Operator

The approximate number of carriers which an efficient operator can care for will depend upon the type of material, the quality of the yarn, the speed of the machines, etc. On the average run of work, this figure may range from 1,200 to 1,800 carriers. On plain work employing comparatively fine count yarns, this number may be doubled. In some instances the braiders might even be permitted to run throughout the night without an attendant. This, of course, will often necessitate a a great amount of work the following morning in piecing up broken ends, replacing empty bobbins, etc., and the advisability of the practice cannot be recommended where a quality product is expected.

The results are achieved in the mill

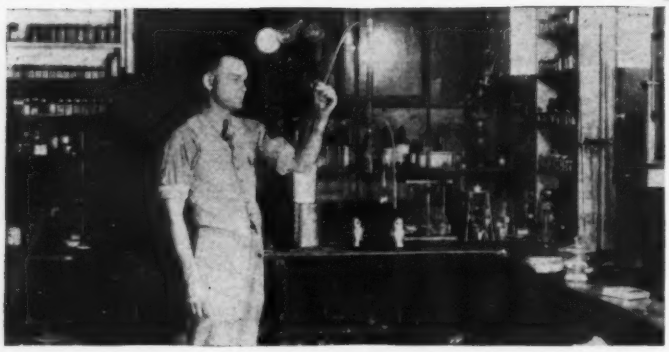


Controlled alkalinity assures

Level Dyeings

on cuprammonium hosiery

By W. H. Hand



The test is made in the laboratory

IF SATISFACTORY results are to be obtained in dyeing hosiery made from cuprammonium yarns, one must use a somewhat different procedure from that employed on viscose. The hosiery when finished should not have too harsh a feel and, at the same time, should not be too soft or flimsy. Fully as important—there must be a good union between the cuprammonium yarn and the mercerized yarn used for the toe and heel.

As a general rule, cuprammonium yarn dyes a much heavier shade than ordinary mercerized cotton. Some mills make it a practice to plate cuprammonium yarn over the mercerized yarn in the heel and toe. Others are using a special type of mercerized yarn which has been treated to give it a greater affinity for dyes than is exhibited by that processed in the usual way. Frequently, however, the dyer is called to handle hosiery which has been knit in the ordinary manner without plating and which contains the regular mercerized yarn. Fortunately, there are some dyes which produce a good union between cuprammonium and mercerized yarns and which are level dyeing.

It is apparent, then, that careful selection of the dyes is a vital factor. Testing of the dyes is carried out in the usual way, by making 1% laboratory dyeings on one or two stockings, until a range of dyes is found which will give the results wanted. The dyes selected should exhaust slowly and should be level dyeing at a boil. For the dyeing method to be described below, dyes which can be employed in a slightly alkaline bath are necessary.

Thorough scouring of the goods is essential to level dyeing. However, it is advisable to keep the alkalinity of the bath as low as possible and still obtain complete removal of the impurities in the goods. There are several methods for dyeing hosiery made from cuprammonium yarn. The following procedure, which is a modified one-bath method, is now being used by the writer and seems to give better all-round results than he obtained with the two-bath process.

The hosiery, contained in cheesecloth nets, is placed in the machine, and water is run in to the proper height and brought to the boil. The scouring compound is then entered, a sufficient quantity of a mild alkali is added to require 10 c.c. of 0.1 N sulphuric acid to neutralize 100 c.c. of the dyebath (using phenolphthalein as an indicator), and the goods are run for 10 to 15 min. at the boil. For example, if the scouring solution is made up with 8% of a neutral sulphonated castor oil and a small amount of pine oil, about 1% of trisodium phosphate will be sufficient.

In our case, we have also found it advantageous to add 2 to 3% of sodium hexametaphosphate to the bath to soften the water.

After the goods have been scoured for about 15 min., the alkalinity of the bath is brought down nearly to the neutral point by the addition of an acid salt, such as monobasic sodium phosphate. In place of this salt, it is possible to use a compound now on the market which is made from a stearic acid base.

When the bath is properly adjusted, it requires 1 c.c. of the 0.1 N solution of sulphuric acid to neutralize 100 c.c. of the liquor. If too much of the acid salt is used and the bath is thrown over to the acid side, a titration with 0.1 N potassium hydroxide will permit one to determine how much alkali must be added to obtain the correct alkalinity. At the start, it is probable that several tests will have to be made. However, once a standard formula is worked out, the alkalinity will not vary much from one dyeing to another, and no difficulty will be encountered in maintaining it at the desired point.

The bath adjusted, the dye is entered into the machine very slowly, from 3 to 5 min. being taken to do so. If the machine is not fitted with an attachment at the side for adding the dye, the operator can add it from a dipper or a special dye-feeding device, being careful to enter only a small amount at a time.

After all the dye has been added, the goods are run for 20 to 30 min. at the boil, 1 to 3% of glauber salt is entered, dyeing is continued for another 20 min., and a sample is taken for matching to shade. When the correct shade is obtained, cold water is run in to flush over the machine, and the goods are then rinsed with cold water, removed from machine, extracted, and boarded.

Section hands can't make proper repairs without the proper

By L. L. Kingsford

Repair Tools

LOOMFIXERS, section-hands, and second-hands are the men responsible for repairs to machinery. In some places, even the overseer must put his shoulder to the wheel in emergencies. Too much stress cannot be placed upon the proper training of these men, particularly in that type of repair work which, while apparently trivial in itself, can in the aggregate make or mar an establishment. Possession of the right tools and using these tools correctly form the basis of proper training.

Certain tools are used commonly in all ordinary repair work around a mill. Among them is the hammer. It is surprising to find that many mills seem to think that there is only one type. Many times the writer has had occasion to comment on the use of the ball-peen type hammer for the fastening of belts in a spinning room. Time and bruised fingers would be saved if a tinner's hammer (Fig. 1) were used, the thin edge of this hammer being particularly adapted for striking the important initial blow.

Next comes the adjustable wrench, whether of the bicycle or S-type. This is a handy device for those mills having a multiplicity of sizes of bolts and setscrews which would require a trunk-full of ordinary wrenches. Great care should be used in getting the proper size, since it is no uncommon sight to see a section-hand trying to loosen a $\frac{3}{4}$-in. nut with a wrench that would be better adapted to the giant bolts of a power plant. Where there are various standard sizes of nuts and setscrews in the mill, a set of well-made S-wrenches is of material help. The section-hand should take care of them so that the right one is readily available when needed.

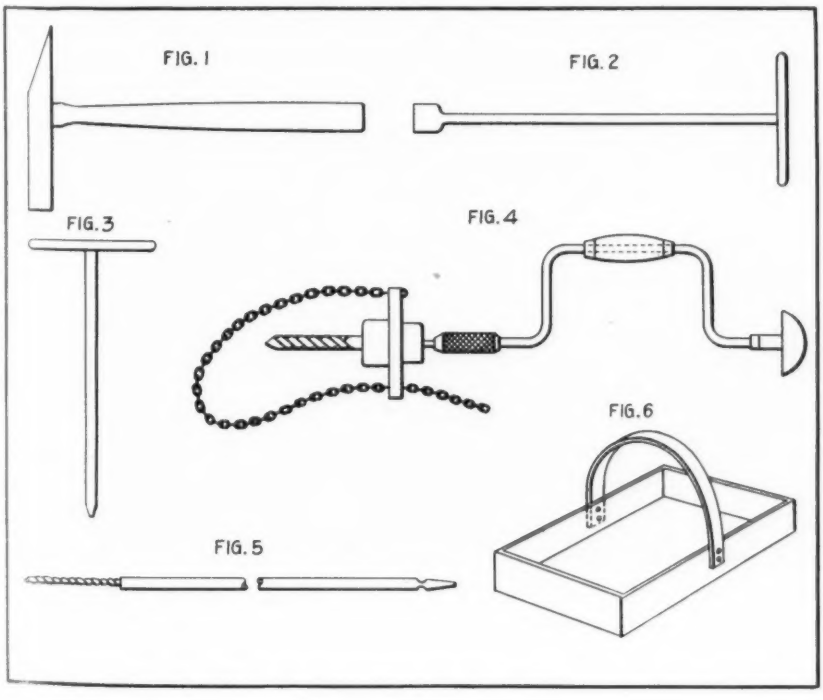
One of the greatest conveniences and time-economizers is the socket or box wrench (Fig. 2). This type of wrench will fit into places that otherwise would be inaccessible with any other style.

The hard-working screwdriver of course has its own indispensable niche in the tool chest. A good stunt is to fit one of them with a T-handle, as shown in Fig. 3. A powerful leverage is afforded, and screws that are the despair of the fixer can usually be persuaded to move by a quick jerk of both hands on the T-handle.

A glance at the files in a mill will often reveal whether or not repairs are efficiently handled. The writer once investigated a complaint about a machine which was losing a considerable percentage of its production and discovered that the cause was the use of a file with such coarse teeth that the parts touched became sources of trouble. Substitution of a very fine file of a somewhat different shape overcame the difficulty. Another great help in the repair line is the universal hacksaw, and it should be in every repair kit.

Not so well known as some of the other tools mentioned, yet a fine first aid to injured mill machinery, is the chain shown in Fig. 4. Any one who had to make repairs requiring the drilling of holes in iron and other metals still remembers the laboriousness of the old hand bit and the ingenious devices sometimes worked up to obtain a greater pressure on the slow-working drill. With the advent of the chain drill, the greater part of the irksome, time-consuming work was eliminated. It is often advantageous to have two persons operate the device, one feeding and the other turning the handle.

Close to the chain drill, but capable of harder, more sustained labor, is the portable electric drill. Large savings can often be effected by a judicious use of this drill. For wood drilling, there is nothing quite so satisfactory as the little handle drill.



Mills would do well to have their tool expert look into the matter of working up special, long-shaft drills (Fig. 5), particularly for use in places which preclude any movement of a brace with the ordinary length of drill. Holes in ceilings often can be bored by long-shaft drills which allow the men to stand comfortably and securely on a firm staging.

One of the saddest sights that a mill man can witness is the filing of a pulley or bearing bore because it is too small to fit its shaft. A set of expansion reamers, to enlarge the bore when necessary, should be kept in the tool room of every mill.

Miles of walking to and from the bench vise for small jobs will be saved by a portable vise that can be clamped to machine being repaired. Probably

no tool serves more faithfully in all kinds of repairs than pliers. Another good old standby is the chisel.

No doubt every mill man who has ever made any repairs has come upon a job requiring the removal of a portion of metalwork which was inaccessible to such tools as the hacksaw, file, or chisel. Here is where the modern fixer's mind turns to the portable emery wheel. Emery wheels bring emery cloth to mind. Emery cloth has many uses and should be studied so that the various grades can be employed most advantageously. Whoever does any joiner's work will never omit a small, hand plane in his list of needed tools. A rule of some kind should also have its place in the work-box of the section-hand. Use of the simple foot-rule can save a mill many losses due to errors in the dimensions of repair parts.

The list of tools given herewith is not intended to be all-inclusive. Only the more common tools, or those with special characteristics which make them useful without requiring a technician to handle or operate them, have been given prominence. It may be said, however, that in the making up of a kit there is sometimes a tendency to gather together too many tools. It seems an inherent trait of the human race to collect things, and collect them in large quantities. Too many tools, like too many cooks, can often mar an otherwise well-planned repair job. It is well to find out just what tools are necessary to make the repairs in any given section and to supply only these.

It is well to investigate the question of transportation of tools. In too many instances, there is still in vogue the old, old method of having all the tools at a work bench and of lugging what tools are needed, or which are thought to be needed, in hands and pockets. When the job is started—usually by this time the machine has been stopped and is in the non-productive class—it is discovered often that some tool absolutely necessary to the job has been overlooked. It is desirable, therefore, that some sort of a handy, portable tool box be provided (Fig. 6) in which the principal tools for the ordinary repairs for a section can be kept at all times, so that when a repair job looms ahead the box is simply carried to the spot. The box can be locked in the work bench when not used.

The work bench is another important factor in scientific tool handling. Many work benches are mongrels; furthermore, the drawers and cupboards of some of them are so littered with rubbish and junk that it is no wonder that half-decent progress cannot be made when a hurry job has to be handled.

When suitable tool boxes and work benches have been supplied, the management should insist that the tools be kept in these two repositories. A walk through almost any plant will convince the executive of the need for a campaign on proper tool storage. Periodic inspection is another factor in the handling of tools. It is a well-known fact that the individual is pretty lenient with himself; therefore the inspection of tools should be made by a superior. For example: the tools of a section-hand should be examined by the second-hand, and the tools of the entire department by the overseer. It is often astonishing to note the results of such an inspection: there are files that could not file butter; screwdrivers with sharpened and broken edges; chisels with the edges so thin and sharp that the first whack of a hammer will cause them to snap like punk. A systematic examination of the tools will do much to remedy this condition.

Fabric Fashions on Normandie, New Queen of the Seas

Luxury and modernism dominate in the distinctive textiles used aboard the palatial French Line steamship, Normandie, recently put in service. Center shows one of the more conservative first class cabins. Fabrics are: Left—Amaranth used in smoking room; right—novelty all-cotton for some staterooms; above—silk floral lampas used in main salon; below—another all-cotton novelty.

Weight Control

Requires special attention by the silk mill

By Lionel T. Bonner
Manager, Purchasing Dept.
Stehli Silks Corp.

The first weighing process checks the raw product.

THE proper control of weight is a basic necessity in the textile industry as a whole. While the man on the street, or the woman on the street, does not realize this and thinks of textiles in terms of yards, the manufacturer who has to make his living out of buying yarn and selling fabrics certainly does realize it. The relation between pounds and profits is a very close one.

No other standard or method of measurement can supplant weighing. The force of gravity is perhaps the only constant force in the world.; it is the same in Japan as it is in Czechoslovakia, and it is the same in January south of the equator as it is in June north of the equator.

Weight control in the manufacture of silk is more vital than in other textiles, because of the higher cost of materials.

The Weighing Processes

The first weighing process is checking the weight of the raw products that have been purchased against the weights on the vendor's invoices.

A bale of silk will run an average weight of 132 to 133 lb. net. Since at the moment of writing Grand XX is selling at $1.42½ a pound, the value of that bale is approximately $188. The stamped weight must be checked, and accurately checked; an error of one part in 133 is only ¾ of 1%; yet it means a potential loss of $1.42½. A scale which repeats such an inaccuracy throughout a shipment of silk bales can build up a sizeable loss in short order.

Next comes the weighing of raw products during various stages of processing to determine the amount of work accomplished by an employee in a day, when such employee is paid for piece work.

The third weighing comes when a piece of material has been woven and its weight is to be checked against the standard weight for a given number of yards of the same quality. If there is a marked variation, then too much or too little material is being put in the quality on the looms.

The last mill weighing takes place when the raw merchandise is packed to go to the dyers. This weight, of course, is to be the basis of the transportation charges.

Another weighing that takes place in mills is in the supply department, where various supplies are weighed to check the vendors' weights as well as the transportation company's weights.

In the selling office "weighted" pieces are weighed as they come in from the dyer, to be sure that they have not been over-weighted or under-weighted. All outgoing shipments are weighed for two reasons: as a basis of transportation charges, and as a check against the contents of the package. If the manufacturer knows that a certain quality weighs 10 lb. to the 60-yd. piece, and he ships ten 60-yd. pieces, he expects the weight to be something over 100 lb. Now, if a customer claims that he got eight 60-yd. pieces and two 30-yd. pieces and the manufacturer finds that his records show a shipping weight of about 95 lb., then he knows the customer is right and therefore through error he has short-shipped. This weight check also works the other way around in protecting him against unjustified claims.

Qualifications of Scales

In selecting scales for use in silk mills, the choice of capacity is important. Contrary to the natural impression, a scale should be of the lowest capacity possible rather than the highest capacity. It is evident that one would have no confidence in the accuracy of weighing 1 lb. of butter on a motor-truck scale. Scales of such high capacity cannot be sensitive to ⅛ or ¼ oz., which represent the accuracy expected in weighing butter. While this is an exaggerated example, it only proves that the capacity of the scale should be chosen for the job at hand, and in all instances it is preferable to limit the capacity to just a small amount more than is actually required for the maximum weight indication needed.

Other qualifications which should be secured in scales are accuracy, even in out-of-level positions and in varying temperatures; speed and simplicity of reading; shock absorption to prevent wear caused by the impact of the load (on platform scales); interchangeability and availability of parts; and durability of the scales as a whole.

Ventilation of finishing plants can be improved by use of correct types of

By Miles Sampson

Hoods and Fans

THE great majority of dyeing and finishing plants now in operation are "old" plants built, say, more than 20 years. Plenty of them occupy buildings more than 40 years old. Even a casual survey of one of these old plants will usually reveal that attempts to provide suitable ventilation, while often expensive, have not always been entirely successful. Fog still delays production and makes working conditions dangerous; condensation is spoiling goods; dangerous fumes escape into working spaces to the detriment of the product and the workers' health. Fans are still of old types, inherently costly to maintain and wasteful of power; they are wasting power, also, by running at excessive speeds, to make a small fan do the work required by new conditions. The possibilities of natural draft are not always utilized. And hoods, withal, are of inefficient design and ineffective in results secured. Motor burn-outs—caused by condensation through a combination of poor ventilation, winter weather, and large production—may, of themselves, easily cost more than a suitable remedy. In these and other cases definite progress can be made, if desire is present, without greatly increasing expense.

A sincere attempt should be made to establish ventilation on a more logical and standardized basis. There is a chance for progress without increasing costs whenever a new machine requiring ventilation is ordered, and when old machinery is moved or modernized. In this spirit, arising out of a considerable experience in textile mills and finishing plants, the suggestions below are offered. They have, in all cases, been tested in service, and old plants striving to get full value for their ventilation dollar should find them of value.

The need of ventilation arises because some machine, or process, produces undesirable working conditions around it. Thus, singers produce smoke, which cannot be allowed to escape into the room because of its effect on eyes and lungs. Open tubs—such as soapers, developers, and jigs—emit steam, sometimes carrying chemical vapors which are destructive. Dryers produce heat and water vapor, which must be removed before drying is slowed down or working conditions are made impossible. And agers, unless the steam removal is reliable and adequate, will produce under-developed and water-spotted seconds.

We start, therefore, with the proposition that some "fumes" will have to be removed—be they air, steam, water vapor, product of combustion, or a mixture of any or all of them. In general, these fumes are hotter than the surrounding air. Their natural tendency is to rise, and then to disperse, due to slight pressures or drafts produced by distant fans or by wind. Once the fumes have dispersed the chance to remove them easily is lost. As a first principle, therefore, an inclosure or hood should confine the escaping fumes as near as possible to the point of origin, so that the fan or other removal agent can act practically on them alone.

A complete inclosure around the offending space is the most effective way to confine the gases. It is expensive to build, particularly if it be large or partially glazed to allow the machinery to be observed. It uses extra floor space, is hard to clean (inside), and slows up maintenance and repair work. Only a few places requiring its use will be found in cotton finishing plants. Where the fumes are produced over a large area, as in a rayon spinning room, the hood usually is impracticable. The whole room becomes the inclosure with the people working therein. If enough fresh air is brought in, the conditions become livable by dilution. The principle has no present application, it is believed, in cotton finishing.

A properly designed hood will, in most cases, catch enough of the offending gases by utilizing their rising and dispersing tendencies. They are simpler and cheaper to make, use no extra floor space, and leave the entire machine open for operation and repair.

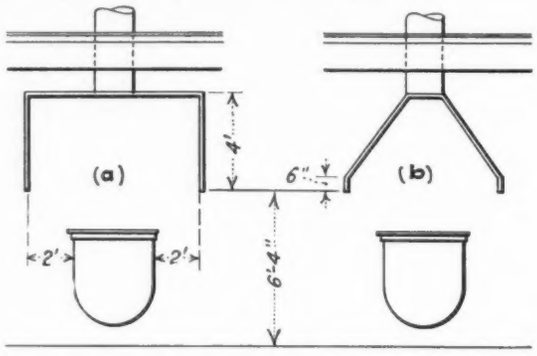


Fig. 1. Fan types—(a), good; (b), bad.

Hoods in general use will be found too small in all three dimensions, rough on the inside, and placed too high. The following general rules have been found practical, and should be helpful in establishing correct proportions:

1. Hood should extend beyond the fume-producing area 1½ to 2½ ft. all round.
2. Depth of vertical edge should be 3 ft. or more.
3. Bottom edge should be not over 6 ft. 4 in. or 6 ft. 6 in. from the floor.
4. Hood should have rectangular edges.
5. Inside top should be smooth, particularly if hood is large.

The effect to be aimed at is that of a reservoir, as large and as close to the tub as feasible, from which the fan can draw. A hood 5 ft. deep will work much better than one 3 ft. deep, particularly with a side outlet to a fan. While some engineers favor a hood with some slope or pitch to its roof—and most present hoods are so constructed, the present writer believes that a hood with shallow edge and pitched roof as in Fig. 1b, while seeming to afford a smooth flow to a top outlet, will be found less effective than the cheaper rectangular type at Fig. 1a.

The hood roof can be provided mostly economically by using the building ceiling as such when the floor height is in the 11 to 13 ft. range; although there can be nothing but ill effect on wooden building beams and

ceilings, caused by heat and moisture to which they are subjected. Concrete ceilings, if so used, will often give trouble by sweating, as will uninsulated wooden roofs in cold climates.

When a separate hood roof is provided, it should be smooth underneath, particularly if the hood area is large. While this involves somewhat more labor than the usual construction (smooth on top), it improves the operation of the hood and allows a single-point fan-take-off.

Hood materials may be of metal, wood, or even cloth. The former will normally be confined to hazardous locations, as on singers, where small fires are frequent. Wood sheathing, the usual material, will serve almost anywhere else. A cheap unbleached cloth stretched on a light wooden framework will also serve the purpose satisfactorily and will last a number of years.

The fan selection generally determines the success or failure of any job. It should, therefore, be put on as logical a basis as possible, even if some important variable factors have to be estimated. This can best be done by determination of one or more factors representing "Air removed (cu.ft. per min.) per unit area" for various usual conditions.

The writer has successfully established these by a study and comparison of existing installations in a large plant, recording the data in the form shown in Fig. 2. In the second column a small sketch with principal

JOB	HOOD	FAN	C.F.M. PER SQ. FT.	JOB SEVERITY	RESULTS
Bldg A 1st. floor 3 dyeing machines	42" Plan 13½" Hood 4 ft. deep smooth underneath	2-42" disk @ 525 Rpm. 1@ 0.1" s.p. = 6200 c.f. 1@ 2" s.p. = 4,700 c.f. 10,900	20	Light	Good

Fig. 2. Form for recording results of study of existing fan installations.

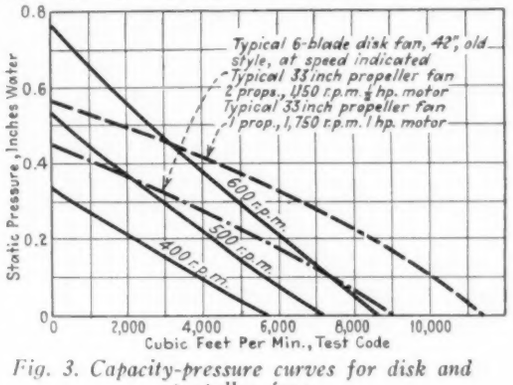


Fig. 3. Capacity-pressure curves for disk and propeller fans.

dimensions, showing the fan take-off will be found most convenient. Note the fan size, type, speed, exposure to winds, and "test code capacity." The latter, divided by the area, will give the factor required. The other two columns are filled in according to the tabulator's judgment.

The test code capacity of the fan (under conditions of installation) is the most important variable, and a few words regarding it may not be amiss. The test code capacity is the true capacity as determined by methods which are technically correct and which have been widely adopted by fan manufacturers and heating and ventilating engineers. Most of the new propeller (airplane type) fans are so rated by their makers, but the old-type disk fans often will be found to be overrated in comparison with test code capacity. The curves shown in Fig. 3 will serve to compare the two types in one common size, and reconcile any differences in ratings.

Another variable is the severity of winds to which the fan is exposed, and allowance should also be made for this exposure factor, which serves to reduce fan capacity greatly. Fans exposed to strong prevailing winds, or having 20 to 30 ft. of suction or discharge duct, may be rated on 0.2-in. static pressure, corresponding to a 20-m.p.h. breeze. Fans with less exposure, or having little or no duct work may be rated on 0.1-in. static pressure. Less severe winds or less fumes will act to increase the capacity and improve ventilation for the time being.

Thus, from a study of existing installations, more or less successful; one or more factors can be obtained, which multiplied by the areas of new hoods, will give the required new fan capacities. On improvement jobs, better hood design alone will sometimes be found to be all that is needed. For top floors and single-story buildings, gravity ventilators are advocated by some of the leading ventilating engineers, as they are more independent of wind and weather conditions. In multi-story buildings, however, fans in the walls are a necessary concession, and in the figures given in this article a rough allowance has been made for their exposure as affecting their minimum capacity.

The new propeller fans are steadily gaining favor as movers of large quantities of air at low pressures. This is not surprising when we consider that the modern propeller fan is a unit, with the propeller engineered to utilize the full motor power; the power curve is very flat, and at no point overloads the motor. Once installed, a special propeller may be substituted for reduced capacity. For additional capacity a new unit of the same or larger nominal diameter must be installed, but a considerable range is available without change of diameter. One maker, for example, now lists capacities of 7,200, 9,200, 10,700, 11,400, 14,200, and 16,200 cu.ft. per min. in one frame size with motors from ¼ to 3 hp. and pressures at no discharge from 0.24 to 1.10 in.

Sometimes suction or discharge piping gets long, pressures go up, and other styles of fans are necessary. Conditions vary greatly, so that only general comment is offered here. The older steel-plate fans with straight blades, have been displaced by other types with curved blades, flatter power curves, convertibility as to hand and discharge, lowered costs for a given volume, and greater efficiency. Fans with many small vanes should be avoided when handling steam, as flock and lint will tend to fill up the spaces between the vanes and corrosion of the thin metal sections may become a factor.

Natural draft can sometimes be utilized to advantage. There is a battery of eight singers in one mill, capable of running 3,000 yd. per minute, ventilated satisfactorily by an old chimney which was left standing when its boilers were removed. With the help of good hoods and large piping, a 30-hp. fan was permanently stopped.

Numerous suction connections to the hood are not necessary; a single outlet of suitable size will handle the hood of a 40-can dryer, say 45x15 ft. in area. The location is important, and should be at the center of the area of greatest steam emission.

[A subsequent article by Mr. Sampson will discuss the ventilation of specific types of finishing plant equipment.]

Scouring is most critical operation in

Pressed-Felt Finishing

By Frederick Albert Hayes

LIKE woolen or worsted goods, felt must be scoured to remove dirt, oil, and fulling materials, and to put the cloth into suitable condition for the subsequent operations of dyeing and finishing. The scouring of felt, however, presents difficulties not usually encountered in either a woolen or worsted mill, although a knit-goods mill may have similar trouble to a lesser degree.

As felt has neither warp nor filling, it is apparent that only those goods that have attained a high degree of strength through heavy fulling will stand a hard or long scouring without stringing out unduly. A 26- to 30-oz. felt, fulled down enough for use in slipper manufacture, will be strong enough to withstand fairly vigorous treatment, but a 10- to 12-oz. lining under the same treatment will resemble a shoestring rather than a piece of cloth. To secure the desired results on different types of felt, a variety of scouring methods are required. The methods used for scouring a medium-weight slipper felt, which is to be dyed afterwards, will be described here.

When the scouring machine is large enough, it is desirable to scour eight pieces at once for the sake of uniformity. Pieces are entered into the front of the machine in strings of two each. Fig. 1 shows how the goods are pulled in through heavy wooden rolls in an endless chain and then pass through the scouring bath contained in the body of the machine. Water at not more than 125° F. is run into the tub until the goods are well floated, and the machine started. Everything must be done to cut the scouring time to a minimum, and it is important, therefore, to run the water in as stated, rather than to heat it afterwards by means of a steam pipe. However, in the lower part of the machine there is an open steam pipe with a cross, protected by a perforated partition to prevent direct contact with the goods, which is used to maintain the scouring temperature. A water-and-steam mixing valve is an ideal arrangement for the addition of water for scouring and rinsing.

The scouring operation is as follows: first, the goods are wet out thoroughly; second, the dirt and grease or oil are emulsified; third, the emulsion is stabilized; and fourth, the emulsion is diluted and is gradually removed by rinsing. The chemical agents required to bring about the emulsification are soap, alkali, and water; while the mechanical action is furnished by the movement of the goods through the rolls of the machine.

In Fig. 1 a trough is shown under the rolls of the machine. In the bottom of the trough are sliding valves, operated externally, and connected to another valve leading to the sewer. These valves are operated simultaneously, but in opposite directions. When the gates in the bottom of the trough are open, the valve to the sewer is closed. When the gates are closed in the trough, the scouring liquor squeezed out by the rolls is discharged to the waste. The purpose of this arrangement is to retain all the bath at the start when the emulsion is being formed, and then later afford a method of removing gradually the stabilized emulsion which is being diluted by the addition of warm water to the body of the machine.

In goods that have been fulled with soap and soda, if a copious lather does not appear immediately when the machine is started, it is a sure sign of trouble. If conditions are right, the lather should be sufficient to fill the box and even spill over the sides. Additional soap and soda must be used to create this condition if it does not occur spontaneously, but this occurrence should also initiate an investigation to find out why the goods with their normal amount of soap and soda from the fulling process did not bring up a suitable lather. As this is a common cause of trouble, it is well to consider the factors which will prevent ready lathering in scouring. These are: (1) acid wool, present from the use of un-neutralized carbonized raw stock; (2) improper carding emulsion; (3) improper fulling compound; (4) hard water.

The question of acid stock was discussed in a previous article.* If used, it causes trouble in fulling, more trouble in scouring, and frequently insurmountable trouble in dyeing. Acid wool should be kept out of the mill; but if it must be used, it must be neutralized on the hardener with ammonia.

Some wool oils require a tremendous amount of soap to maintain a stable emulsion in water. Repeatedly, soap makers have been charged with changing the quality of soap, while all that has happened is that the oil has been changed. Whatever "knocks down" the soap in the fulling will also have an affect in scouring.

If the water is hard, good scouring cannot be expected or secured. A mill which lacks a soft water will find a good treating plant a paying investment.

Assuming that a lively and copious lather has resulted soon after the start of the rolls, the goods should be run about 20 min. After the preliminary run, during which the emulsion is formed, the upper gate should be opened, and the front spray of warm water turned on. This dilutes the emulsion gradually, as the suds from the roll are being wasted to the sewer and fresh water is being added at the same rate. It takes about 40 min. to remove the emulsion completely and leave the goods clean and free from alkali. When very heavy goods are being scoured, a longer time for rinsing may be necessary. In such a case, the use of one or two buckets of dilute ammonia in the rinse water aids removal of the soap.

All of the scouring operations must be run in accordance with what the felt can stand. If run too long, the goods will string out and be spoiled; if not run long enough, they will prove difficult to dye evenly. Some scourers try to wash the felt free of alkali to the extent that it does not show pink when tested with phenolphthalein. It is easy to get fooled with this test, as there are some waters which show the test to start with, and endless washing will not clear up the color. Observation of the amount of lather remaining is a good test, but this in

*Blending, carding, and forming of felt were described by the author in an article in TEXTILE WORLD, Sept. 15, 1931. The hardening and fulling operations were described in the issue of Oct. 10, 1931.

turn is largely controlled by the temperature of the final rinse water. It is good practice to make the final rinse with cold water, but to use it only after being satisfied that the goods are properly scoured. A stunt occasionally used by a scourer, driven desperate by the claims of the dyer that goods are poorly scoured, is to drop a little acetic acid in the final rinse. While this completely removes all lather, and the felt shows colorless with phenolphthalein, it obviously does not prove that a good scour has been obtained. In fact, the dyer probably has more trouble than ever.

Where linings of low strength are being made, it is customary to full them with sulphuric acid, and scour for a short time, using only soda for a neutralizing and scouring agent.

After scouring, felt is extracted to remove excess water, and is then dyed in the usual kettle in lots of four or eight pieces. The operation is not essentially different from that employed in a woolen mill, but is far more difficult, because of the ever-present danger of prolonged dyeing causing too much elongation of the pieces. The dyer has to get his shade without many additions of dyes, which require time and running of the goods. Furthermore, his problem is much more complicated than in a woolen mill, as the cotton and wool are mixed frequently on the face of the goods. This requires an absolute match in shades of the two fibers, which is not easy.

For all-wool dyeing, acid dyes are used. Dyes should be selected which exhaust only with the use of acid in the dyebath at a boil—and then slowly and incompletely. A dye which leaves a colorless solution as the goods come to the boil will cause streaks.

For union dyeing, direct dyes may be used. One subgroup of direct colors will dye wool and cotton to about the same shade and intensity from a neutral bath. Unfortunately, this group is limited, and it also has the disadvantage of dyeing the wool much heavier than the cotton when the boiling operation is prolonged unduly. One successful method combines the use of a selection of direct dyes which have a greater affinity for cotton than for wool when dyed at the boil from a neutral bath, and a selection of acid colors which have the property of dyeing wool to the exclusion of the cotton under similar conditions. Thus, a combination of the two groups puts into the dyer's hands colors which he can control independently. It is not always possible to match a shade exactly with the original addition of dyes. If union colors are used, and an addition is necessary, it is difficult to keep the cotton dyed properly. Basic colors are rarely used, because of the methods of application, and also because they are liable to crock and are not particularly fast to light. Their only justification is the brilliancy of the shade produced. When used, they are applied as an aftertreatment to goods dyed with union or direct colors, or which have been mordanted.

The class of dyes used determines the method of running the goods in the dyebath. If eight pieces are to be run, it is better to use a box big enough for eight strings, rather than four strings of two each. Care must be used in sewing the ends together, as creases are liable to develop in the goods running in the hot bath, and these do not dye the same as the rest of the goods.

The goods are thoroughly wet out by bringing the bath to a boil in as short a time as possible. The bath is let out, fresh water drawn in, and the goods are run until they are cool and perfectly uniform. If the goods are taken directly from the extractor, the wetting-out process is not required. During this operation, if the goods

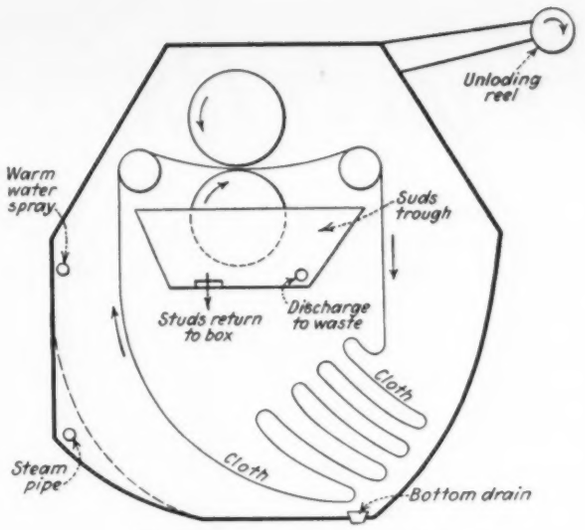


Fig. 1. Felt scouring machine

contain shoddy, the color of which can be stripped with ammonia, a quart of 26° ammonia is added to the bath. This will lighten the shade of many shoddies to such a degree that a much lighter color can be attained than otherwise would be possible.

After the goods have been wet out and cooled, the appropriate dyes and chemicals are added to the cool bath. For all-wool goods, from 10 to 15% of glauber salt, on the weight of the goods, is added to the bath. If the colors to be used are level dyeing, 2% of sulphuric acid or an equivalent amount of formic acid, can be added at the same time. After the machine is started, the dyes in solution are added and the steam is turned on to bring the bath to a boil. Dyeing requires about 40 min. The process, if forced, will result in streaky goods. After boiling for 15 min., a sample swatch is taken from the piece and compared with the standard. The goods will not be full shade by this time, but experience will show whether they are coming along properly, or whether a dye addition is needed. It will require from 30 to 40 min. at an active boil to develop the shade fully. Subsequently, the goods are washed with warm and then cold water, removed from the kettle, and extracted.

Union goods are prepared in a similar way, but the dyes are added in solution to the warm bath, and then the bath is brought to a boil. Dependent on the depth of the shade wanted, common salt up to 20% of the weight of the goods is added, and the goods are run at a boil or just under the boil.

There is nothing unusual in felt-finishing operations, unless it is the requirement for a tenter-dryer of unusual strength. Slipper felt is sold usually in pieces 60 in. wide. During the fulling process it has been pulled back or "overhauled" to width, but no matter how skillfully the scouring and dyeing processes have been performed the goods will come to the finishing room for drying much under width. If the final width is to be 60 in., trimmed, it is not unusual to find goods at this state from 45 to 50 in. wide. To overcome this, the goods are run on a tenter frame which runs through a dryer. A heavy piece of felt will put a tremendous strain on the tenter.

After emerging from the dyer, the felt is sheared, pressed, inspected, measured, and bundled. The chief requirements of a slipper felt are strength and a good surface. It is customary to shear the back twice, and the face from six to eight times to get a suitable smooth surface.

Wood Pulp or Linters . . .

By M. Wadewitz
North American Rayon Corp.
Elizabethton, Tenn.

Changing requirements for raw materials and other trends in rayon industry

UNTIL a few years ago the development of the rayon industry was carried out in the research laboratories of the different plants behind closed doors, and, except in the patent literature, little was published of the results attained. This has partly changed, and the principles of production of the different types of rayon are generally well known at present. At the same time, the rayon manufacturers have been able to improve the quality of their products and to lower the prices obtained for them. Producers of the raw materials used in the manufacture of rayon have kept pace with the demands of the rayon industry for higher and higher quality. Since the raw materials are of utmost importance in the manufacture of rayon, we shall consider them in some detail. First, however, will be mentioned briefly a few of the more recent improvements in the production of rayon and one or two of the more important present trends.

In view of the unstable cotton prices which are also reflected in the linters market, there is a tendency at present to change from linters pulp to wood pulp exclusively for viscose rayon production. Other users of cotton linters are also experimenting with new types of refined wood pulp which are expected to be on a more staple price basis than cotton linters and might give equally good results. —Wadewitz.

Several years ago only the cuprammonium process could produce yarn with fine filaments of 1 denier and less, but the viscose manufacturers are now able to achieve the same results by refining the methods of viscose preparation, filtration, modification of spinning bath, etc. Five years ago a thread of viscose rayon having a breaking strength of 1.5 grams per denier was considered good, while today the average dry strength for 1-denier yarn ranges between 1.75 and 2 grams. The wet strength has been increased in the same proportion.

Improvement in the quality of rayon has been accompanied by a total increase of 54% in world production in 1934 over 1932. Particularly significant from the viewpoint of this discussion is the increase in the percentage of acetate. This trend is more marked in the United States than elsewhere in the world, the percentage of acetate produced rising from 13.5 in 1932 to 19% in 1934.

American viscose producers consume between 80,000 and 100,000 tons of solid caustic soda. Recognizing that iron in caustic soda is detrimental because it affects the viscosity of the viscose solution, the alkali producers have changed part of their iron equipment to nickel equipment, thereby controlling the iron content of caustic soda and keeping it at a low figure.

The basic raw material for the manufacture of rayon is cellulose either in form of cotton linters or special wood pulp. The nitrocellulose, the cuprammonium, and the acetate processes so far have used only cotton linters, while the viscose process mainly used wood pulp. American viscose producers, however, have also consumed relatively large quantities of cotton linters in combination with wood pulp for the manufacture of viscose rayon. Consumption of rayon wood pulp in the United States during 1934 is estimated at 90,000 tons and that of cotton linters at 28,000 tons.

In view of the unstable cotton prices which are also reflected in the linters market, there is a tendency at present to change from linters to wood pulp exclusively for viscose rayon production. Other users of cotton linters are also experimenting with new types of refined wood pulp which are expected to be on a more stable price basis than cotton linters. Pulps with improved qualities have been produced, and the chemical cellulose industry is making every effort to progress further in this direction. Thus far, only sulphite pulp has proved satisfactory for the production of rayon. Sulphate pulp has been used for experiments, but not with any great success.

Other cellulose raw materials have been tried out, such as bagasse and cornstalks. While it is possible to prepare cellulose from these materials suitable for rayon production, the difficulties encountered seem to be of an economical nature. Bagasse is a seasonal product, the storage of which is difficult, and its yield in cellulose is rather low. Similar facts apply to cornstalks. On the other hand, certain types of wood grow in abundance in a very uniform quality. Spruce is a typical representative, and for years has formed the exclusive source of supply for rayon wood pulp. Some years ago, a wood pulp prepared from Western Hemlock was introduced for rayon manufacture and has gained considerable recognition. Recently, experiments have started in the South in an effort to use southern pines as a source of chemical cellulose for the manufacture of rayon. Germany has recently tried to use beechwood pulp for the production of rayon, and according to preliminary reports, this also seems, to be suitable.

Abstract of paper presented at the New York meeting of the cellulose division, American Chemical Society.

Color and Sparkle Enliven Textiles in

Consumer Ads

By John Black
Assistant Editor, TEXTILE WORLD

ONE of the most significant developments in textile merchandising during recent years has been the increasing emphasis on consumer advertising. This emphasis shows itself chiefly in the manner in which these advertising campaigns are conducted rather than in any gain either in total expenditures or in the number of textile firms participating. During the first quarter of the century consumer advertising of textiles increased steadily, but suffered a drop during the depression, from which it has not yet recovered. Though this promotion is a minor part of merchandising expenditure, those mills which do address their sales message to the ultimate consumer, do so with such skill and effectiveness as to convey the illusion of a general consumer campaign on the part of the industry.

The full history of the development of consumer advertising by textile mills covers a span of nearly half a century. Up to the nineties it was almost unheard-of for mills to advertise in consumer publications; the turn of the century brought a gradual change of viewpoint; more and more firms adopted this policy until today some of the leading companies spend large sums to sell their wares in colorful layouts in various of the popular magazines.

Clearly the chief reason for this policy was the development of the brand name. Psychologists say that as a nation we have become "brand name conscious"; certainly that has some truth in it, as regards textiles. The brand name has become increasingly important in most textile branches, and it was obvious that this trend should

bring with it the need for popularizing such names through consumer promotion.

As is shown in the accompanying table, advertising outlay by textile firms in consumer magazines reached its high point in 1929. After that year the economic rigors of the depression brought a sharp drop; now, however, the curve again is slowly turning upward. Assuming promotion of the brand name to be a focal point in such advertising, we may well look for a continued gain in consumer advertising expenditures, since indications are that the brand name will become more and more important in textiles as the years pass.

It should be kept in mind, however, that most textile manufacturers are still too far removed from the consumer to warrant substantial investment in this type of advertising. As a rule consumers are not familiar with identity of fabrics, this identity being still largely confined to the different branches of industry. The drive to carry identity of fabrics through all divisions—converter, cutter, store—to the consumer is being waged persistently and is progressing. As this movement advances, it will gradually narrow the divide between mill and consumer and will supply a sound reason for consumer advertising.

We must not suppose either that extensive advertising in consumer magazines is of itself any magic route to profits for the mill. Textile manufacturers who have been outstandingly successful in selling their names to the consumer and who spend large sums in consumer publications, point out that such advertising is only effective when it is keyed in with a well-rounded styling and merchandising program. It is emphasized that consumer advertising, like all other advertising and promotion, should be subjected to periodical tests. One company which has made its name a household word through a decade of consumer, as well as trade publication, advertising conducts surveys of its consumer campaign effectiveness every two years. These tests have proved the wisdom of consumer advertising. A survey held in January, 1926, showed that 25.4% of the firm's customers who were interviewed bought the merchandise by brand name; a survey made in 1932 showed that 80% of the firm's customers bought their merchandise by the brand name.

While most textile firms still remain anonymous to the ultimate consumer, that group of firms which does advertise to the consumer is both energetic and varied. This group includes firms in most branches of the textile trade. The divisions which lead in this activity are the knitting mills, including hosiery, underwear, outerwear; the wool and cotton goods mills; firms specializing in domestics; and the rayon yarn industry.

A study of consumer advertising used by textile mills over a period of years shows vividly the progress that

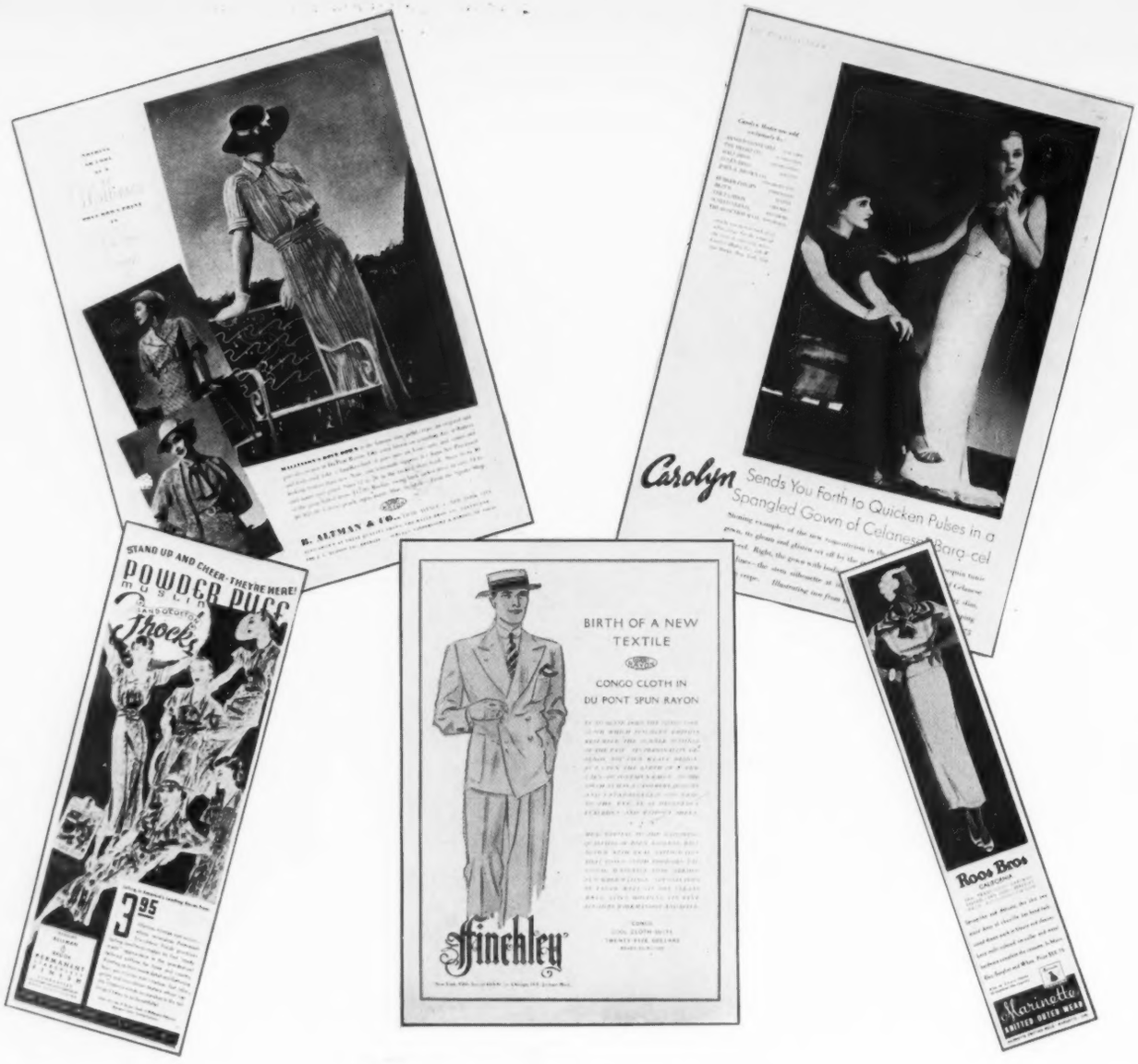
has been made. The advertising reflects not only the progress in typography, illustration and layout of copy, but also the signal advance which the textile industry itself has made in styling of product, packaging, etc.

What a contrast between today's textile advertisements and those of other years! Gone are the stodgy overdressed layouts. In place of the muddy line drawing sketches in black-and-white of 1910, we have artistic photographs reproduced in natural colors. Gone are the columns of heavy text and involved sentences; in place of these we have snappy sales talks compressed in pithy paragraphs.

The advent of color in advertising proved a turning-point so far as consumer promotion of textiles was concerned. This development brought a miraculous change in textile advertising. The delicate nuances of modern fabric finishes which hitherto had been hopelessly lost in advertising illustrations, now delight the eye in magazine pages, and this important advantage has helped greatly the effectiveness of the presentation.

The story of what has happened in advertising domestic textiles is equally a story of styling and packaging achievement. Fundamental improvement in the designing and packaging of towels, blankets, etc., brought similar improvement in advertising. The transformation of towels is typical. When Virginia Hamill and the others who followed her lifted the lowly towel from kitchen obscurity, and re-designed it along artistic lines, advertising of towels had to undergo a similar revolution. The new copy had to reflect the new identity of the towels. The change was made promptly and decisively. Soon the advertising of these ultilitarian textiles glowed and sparkled in a dozen colors and the copy which promoted towels or blankets was every bit as artistic as that selling satins or chiffons.

The major thought in consumer advertising by mills is to sell the consumer, yet there is another phase of this investment which must not be overlooked; that is, the trend to use certain consumer periodicals as a sort of "prestige trade press," in selling textiles to the store buyers. This idea is employed by numerous mills, especially rayon producers, who highlight names of fashionable stores in advertisements placed in such prestige magazines as *Vogue, New Yorker, Harper's Bazaar,* etc. Thousands of reprints of these ads with the magazine name clearly indicated on the reprint are distributed to retail buyers from coast to coast. Thus, the prestige of the magazine and of the stores serves as an impressive frame for the textile.

Analysis of consumer advertising by textile mills would not be complete without mention of cooperative advertising. This practice warrants attention, as it is comparatively new, and is becoming more widely adopted. In this type of advertising, the copy may carry

*Trend of Expenditures by Textile Firms on Consumer Advertising, 1924-1934**

Year	Approximate Expenditure by Textile Firms	% of Total Expenditures of All Firms
1924.....	$10,700,000	10
1929.....	16,100,000	9
1932.....	5,800,000	6
1934.....	7,300,569	7½

*These figures are abstracted from "Leading Advertisers Table," compiled and published by Curtis Publishing Co., Philadelphia, and based on reports of advertising investment of firms spending $10,000 and over in 1924 and $20,000 and over in other years, in 35 consumer magazines.

the names of a yarn manufacturer or a fabric weaver, and a store, and not infrequently it carries all three names. The aim of this method is to buy prestige. A firm not so well known to the consumer needs a prestige tie-up, so it gives free advertising to a name that the consumer knows and trusts. This method is used both by mills and by stores, but chiefly by the former.

The practice among textile manufacturers of giving certain stores free advertising for prestige value has become so general that one executive of a noted Fifth Avenue store estimates his firm saved $200,000 in 1934 by free ads for which the mills paid.

The cooperative advertisement has certain very definite advantages and has proved a successful sales weapon, but it also makes for complications at times, as, for example, when we find textile firms devoting space in their consumer ads to selling soap!

Sometimes the cooperative ad is an out-and-out share-the-cost proposition and as such has proved helpful in spurring retail movement of a mill's merchandise. An interesting example of a successful method of mills sharing costs with stores is the plan employed in 1933 by Botany Worsted Mills. Botany wanted to stimulate retail sale of an important new line of neckties. To this end the company announced it would match dollars with retailers on advertising the neckwear up to 50c. per dozen. The plan carried adequate provision for protection of the mill in all phases; it proved very successful.

ADVERTISING PAGES REMOVED

TEXTILE WORLD ANALYST

F. T. C. report on cotton textiles extended to end of 1934

Revised Half-Year Index: With figures for June now available, TEXTILE WORLD's index of textile mill activity now shows an increase of 7½% for the first half of 1935 over the first half of 1934. Furthermore, the January-June period of this year was pretty close to the average for the corresponding period over the eight years from 1924 to 1931 inclusive, roughly assumed as "normal." Wool gave the best performance of all the textile fibers, being sharply above last year in activity. Silk and rayon were slightly up, while cotton was very slightly down.

THE Federal Trade Commission today made public the first part of a new and amplified report on its textile industries investigation, entitled "The Textile Industries in 1933 and 1934," this part relating to the cotton textile industries.

The report covers four six-month periods from Jan. 1, 1933, to Dec. 31, 1934, and is in substantially the same form as the Commission's preliminary report on the cotton textile industries released March 8, 1935, covering the three six-month periods from Jan. 1, 1933, to June 30, 1934, and the two-month period of July and August, 1934. The first three periods covered are the same for both reports, but the fourth period of the new report covers a six-month period from July 1 to Dec. 31, 1934.

The period July-December, 1933, was by far the most prosperous of the period of the inquiry for each branch of the industry except commission dyers and finishers. The rate of return on investment for this six-month period ranged from 4.32% for the commission dyers and finishers to 10.68% for the stock dyers and finishers. For the period January-June, 1933, the rates of return on textile investment ranged from 3.06% for the spinning companies to 7.99% for the stock dyers and finishers. For the January-June, 1934, period, the rates of return on textile investment ranged from .23% for the weaving companies to 9.85% for the stock dyers and finishers. For the July-December, 1934, period, however, each branch of the industry showed losses ranging from .31% for the weaving companies to 5.17% for the commission dyers and finishers. It will thus be noted that the last period was very unprofitable for the industry as a whole.

Cotton Spinning Companies: For the first three six-month periods, net earnings constituted respectively, 3.06%, 8.14% and 4.07% of textile investment. Losses in the last period were equivalent to 1.96% of the net textile investment. These rates are computed on an annual basis.

The Commission studied the effects, under certain assumptions, which would have resulted from decreases in working hours, or direct wage increases. This study shows that in the first and third periods the reduction in hours of between 12½ and 15%, and in the second period a reduction of between 22½ and 25%, would have eliminated all profits on sales. In the last period, these companies showed losses, and therefore had no ability to meet increased labor costs.

Cotton Weaving Companies: During each of the first three periods covered, net earnings constituted 4.03%, 10.17% and 0.23% of the net textile investment, respectively. During the last period, the companies lost 0.31% on the textile investment.

Under certain assumed conditions, the effect of reductions in hours or of direct wage increases by corresponding percentages were studied for this group of companies. The Commission's study shows that in the first period covered a reduction in hours of between 12½ and 15% would have eliminated all profits on sales. In the second period, the companies could have paid the increased labor costs due to 25% reduction in hours without eliminating all profits. In the last two periods, increased labor costs would have resulted only in increased losses on sales.

Combined Spinning and Weaving Companies: From the standpoint of many significant criteria, the 296 companies covered in this section constitute the most important cotton manufacturing group. The ratio of net earnings to net textile investment for each of the four successive six-months periods were: 4.13%, 9.16%, 4.34%, and a loss of 1.77%.

As to the ability of these companies to pay for increased labor costs out of profits, the Commission notes the following results of this study: In the first and third periods, a reduction in hours of 15 and 12½%, respectively, would have resulted in almost wiping out profits on sales. In the profitable second period, an increase in labor costs, due to reducing hours by 25% (equivalent to direct wage increase of 33⅓%), would have reduced net profits on sales to less than 1%. In the last period, increased labor costs would have augmented losses on sales.

Dyeing and Finishing Companies: Rates of return for the stock dyers and finishers greatly exceeded those for the commission companies. On the basis of textile investment, the stock companies earned 7.99% in the first, 10.68% in the second, and 9.85% in the third, and showed a loss of 1.46% in the last period. The commission companies earned 4.61%, 4.32% and 5.02%, respectively in the first three periods, and showed a loss of 5.17% in the last period. For the stock companies, the addition of two companies in the present report very substantially altered the rates of return showed by this class of companies in the earlier report.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	21.4	February, 1935..	16.0
October, 1933...	19.1	March, 1935....	15.9
January, 1934...	18.4	April, 1935.....	16.1
April, 1934.....	17.6	May, 1935.....	16.0
July, 1934.....	15.5	June, 1935.....	16.5
August, 1934....	16.6	July, 1935.....	15.2
September, 1934	18.6	July 3.....	15.4
October, 1934...	17.4	July 10.....	15.4
November 1934.	15.8	July 17.....	15.2
December, 1934	16.2	July 24.....	15.0
January, 1935...	16.2	July 31.....	15.2

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	23.5	February, 1935..	13.9
October, 1933...	20.0	March, 1935....	14.4
January, 1934...	18.3	April, 1935.....	14.1
April, 1934.....	15.9	May, 1935.....	13.8
July, 1934.....	14.7	June, 1935.....	14.5
August, 1934....	15.3	July, 1935.....	14.3
September, 1934.	15.6	July 3.....	13.9
October, 1934...	14.6	July 10.....	13.9
November, 1934.	13.5	July 17.....	14.0
December, 1934.	13.5	July 24.....	14.7
January, 1935...	13.5	July 31.....	14.8

▼ ▼ ▼

Textile World's Price Index Numbers

Date	Cotton Index Numbers				Wool Index Numbers				Silk Index
	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1932, average..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
1934, " ..	132	142	139	141	138	159	167	206	28
Jan. 1935.....	135	138	137	140	124	132	154	190	32
Feb. 1935.....	134	138	136	140	116	124	152	190	31
Mar. 1935.....	127	136	134	139	108	118	148	190	29
Apr. 1935.....	127	135	131	138	105	114	148	190	30
May 1935.....	132	137	133	139	108	116	150	200	30
June 1935.....	128	138	133	139	123	135	155	200	30
July 1935.....	131	140	130	139	123	135	155	200	33

Note: All cotton indices since Aug. 1, 1933, include processing tax.

Overseers'

THIS DEPARTMENT

offers practical material for the use of overseers in meeting the daily problems of their jobs. It includes valuable suggestions on industrial relations in the handling of which both the overseer and the superintendent are involved. Under the heading "Kinks" appear short cuts in mill technique which have already solved problems in at least one mill and may help in yours. The central panel features material from a mill superintendent's diary which offers practical hints on various matters taken from actual mill experience. We solicit your contribution to this department—see panel on opposite page for details.

▼

From a Superintendent's Diary—

KEEPING

(Based on actual mill notes)

IT SO happens that the treasurer of our organization makes his headquarters at the selling office in New York and is not able to spend much time at the mill. From time to time, however, when he is not terribly rushed on one of his visits, I have found it helpful to have him attend our regular overseers' meetings and give an outline of what is going on. The overseers naturally do not have the chance that I do to see the correspondence that goes back and forth between here and the selling office and get in the habit of thinking that when the goods go out the shipping door that is the end of the story.

There are a great many things that such an executive can tell the overseers that will help to keep things running smoothly. For example, he might outline market conditions and point out that the way things are going business will slacken off considerably during the next few weeks, or vice versa. This gives the overseer much more of a feeling that he is a real part of the organization than if I merely tell him one day to lay off or put on operatives. In addition to speaking about market conditions and perhaps giving a brief sketch of competitive conditions, prices, etc., the executive can bring home to the overseers the results of their good and bad work. Suppose that we have turned out a product that has been well made and has sold well. Of course when the

About Criticism

Editor, Overseers' Corner:

The ideal of 100% cooperation is impossible to achieve with the present make-up of human nature. Not being able to obtain voluntary cooperation, we have in some cases been coercive and had what looked like 100% surface cooperation, yet found that practically every overseer was "taking a kick at his neighbor's shins under the table."

Prior to my taking charge of the mill, there had been much juggling around of overseers without much results. I concluded that if my set of overseers didn't cut out being so bull-headed and contrary to one another, and start pulling all together, there would be a wholesale housecleaning. Fortunately, however, one sneaky man who had always agreed with me in my criticisms but had a slick way of passing the buck made a disastrous slip. Naturally he went out and, as he was in one of the early preparatory departments, it opened up the way for us to apply corrective measures.

Each overseer had complained that he was handicapped because the department just before his was turning out such poor work that he could not correct the other fellow's mistakes and also do his own job properly. I called the series of bluffs by moving each overseer back one operation towards the beginning, so he could make the stock right to send to his old department. This moved 11 of 14 overseers one step nearer the primary operations and put it right up to each one to do just what he had been telling me should be done by the feeding department. Then, too, we had the advantage of an overseer feeding the work to his former hands, for whom he had always fought. The results showed up in our balance sheet. G. E. E.

Editor, Overseers' Corner:

I am very glad to note the recent comments in the diary concerning the criticism of overseers and the effect of criticism on the individual.

Of all places where diplomacy is needed, one of the most important is in dealing with criticism. The majority of executives, in making their criticisms, are doing nothing short of calling a man on the carpet to bawl him out. This may not be done intentionally, but the effect remains the same. Furthermore, in 75% of the cases those who are criticised and resent it are justified, as the technique is far from an old-established yardstick "treat the other fellow as you would like to be treated."

In the next place, criticism is not worth the time it takes to give unless some practical, fool-proof method of correction is offered with it. Further, criticism should never be given or statements made in such a way that the person criticised will think that he is being accused unjustly.

Many times an overseer calls in the second-hand and criticises him for an hour or more daily, but I have observed that during the times such an overseer is on vacation, and the second-hands are left in full charge, the job runs as smoothly as possible. This seems to indicate that in many cases the time consumed in criticism could be more beneficially used by the overseer and second-hand in carrying out their duties.

Cooperation is the most grossly misused word in the English language and a better term for management to use would be "team-work." Many times I think that the word cooperation was coined for the sole purpose of giving the supervisory force something to talk about that no one knew anything about. The best of teachers use the simplest of words, and superintendents, overseers and second-hands must be classed as teachers. F. L. B.

Editor, Overseers' Corner:

The super's diary dealing with the effect of criticism on cooperation is, on the whole, a very able and just presentation from the super's point of view.

It would be well, however, to bear in mind that there is "no smoke without fire" when dealing with such a controversial subject. Overseers, like supers, are human and as such are liable to err; but remember the former, generally speaking, has devoted the major part of his life to his special field of operation, whereas the super, no matter how efficient he may be, has only a working and general knowledge of the various and intricate operations common to all textile mills.

Consequently, when the super criticises one of his overseers he ought to do so in a manner befitting his qualifications and endeavor to convey a spirit of helpfulness and sincere cooperation without trying to show his superiority over the subordinate he is dealing with.

It is well known that some natures are less congenial and more temperamental than others. When dealing with this type, a different method of attack is absolutely

Corner

CONTRIBUTIONS

to the "Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the super's diary or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.

OVERSEERS INFORMED

By John Williams

overseers, collectively or individually, do a good job, I make a point of giving a few pats on the back; but it is much more impressive to have the head of the concern tell how well the goods sold and what certain customers said. It works the other way around also. For example, we may have turned out some bum stuff that the selling office had had rejected and then had to sell at a loss. The treasurer leaves it up to me to find out just what caused the trouble, so his criticism is on an impersonal basis, but believe me it makes every one realize his responsibilities when the big boss tells, perhaps, how a good customer was lost because of poor work and how much was lost when the goods had to be sold as seconds. Another thing he can bring home to the overseer is the extent to which business is lost through unnecessary delays in delivery and how important it is to live up to all promises that are made about shipments.

In mills where the chief executive is at the plant, I think he should attend the overseers' meetings and give the broad picture every so often, and it should be arranged for some one from the selling organization to address the group occasionally. Overseers, like all the rest of us, like to be kept informed; and they aren't so likely to slip into the rut of routine when you give them a line on things.

necessary. Again, if two like natures with superiority complexes get together, fireworks are sure to result. Therefore the super ought first to study the characteristics of his overseers, approach them in a tactful manner and talk things over in a spirit of friendship without, unwittingly perhaps, conveying the impression that, being the superior in position, his opinions are beyond dispute.

Be that as it may, I wish to state that I hold no brief for the overseer who is so self-important that he resents honest and constructive suggestions, no matter from whom they may come, and who uses as his only weapon of defense a steady flow of expletives interspersed with invidious personal invectives. Such action only makes more transparent the cloak of deception with which he has surrounded himself.

R. A. C.

Keeping Labor Vocal

One publisher, who feels keenly on the subject of making the real voice of labor effective, suggests the following:

"Have posted on office and plant bulletin boards the vote of Senators and Representatives from day to day on current legislation. Encourage workers to be vocal. Urge them to let Congressmen know whether or not such votes are approved."

KINKS

Putting Spindles in Shuttles

Editor, Overseers' Corner:

Our former custom in pressing spindles into shuttles was to put the spindle in a vise and, while one man pushed the shuttle down over the spindle, the other man drove the pin into place. With the tool described, one man can change spindles quickly without bending the spindle. While wood has been used for the base in the accompanying sketch, it might preferably be made of iron.

Fig. 1 shows the cross section of the device. The plunger *A* forces the spindle into place as the crank *B* is turned.

Fig. 2 shows the layout of the top of the base while Fig. 3 gives the end section and shows the position of *A*.

L. A. Day.

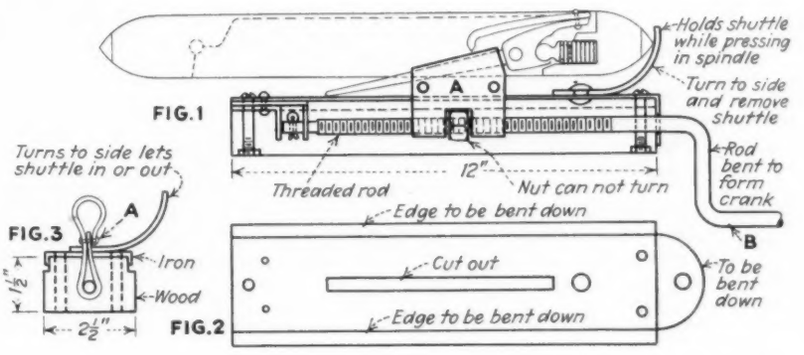
Preventing Bad Piecings In Gilling

Editor, Overseers' Corner:

Bad piecings in tops are justly complained of by spinners, who feel that they have enough worries of their own without carrying those due to mistakes or negligence on the part of the comber. It is felt sometimes that defective slivers passed on to the spinners are not taken seriously enough by the combers, who rarely have to pay for the damaged pieces or extra mending that they cause.

One concern has devised a method of arresting bad piecings at their source. When a top sliver from the second finisher-box issues from the front roll, it is in the form of a broad ribbon. To prevent slubs from passing forward into the top, this sliver is made to pass through a flat eyelet, 3x¾ in., which is placed close to the front roll. Bad piecings reaching this point break, as there is not room for them to pass through the eyelet. Of course, critical readers may say it may be better to have a slub than a broken end, and a possible lap made when an end breaks. This is not disputed. With the eyelets, however, both are remedied; for, when the operative finds that bad piecings cannot pass through the eyelet, he or she quickly learns to avoid making them.

George Hendricks.



QUESTIONS AND ANSWERS

Laundry and Dye Nets

Technical Editor:

Some years ago I was running pretty heavy on laundry nets and hosiery dye nets, but discontinued this, for I was unable to meet Southern competition and break even. Last fall I felt out the Twin Cities' market. What I would like to know is how they could sell nets at the prices that they were then selling them. Mills were offering a 24x36-in. net, 14 lb. to the dozen, at $4.81 laid down in Minneapolis. The price that I got on yarns at that time was 30c. per pound laid down here (Wisconsin).

14 lb. yarn at 30c. per lb.	$4.20
Freight to Minneapolis these mills allowed	.21
	$4.41

This leaves them for selling cost and all other manufacturing expenses only the small sum of 40c.

I have been told that they use yarns made up out of comber strips and other waste. Is it possible to get a good grade of yarn out of comber strips, and what is the price compared to yarns made out of the regular cotton? This yarn must be clean, and most nets are made out of yarns that are tube twisted.

I am enclosing sample of yarns that I have been using, but to meet the prices of other mills on nets I must be able to get them at about 3c. per pound less than the quotations I have had.

Any information that you can give me along these lines will be greatly appreciated. (8181)

The question as to how they could sell nets at these prices cannot be answered correctly without a field survey and knowing just where the yarns were obtained by the different manufacturers, checking on the sources of waste yarns, determining what types of yarn were available, and discovering whether or not such yarns were for one reason or another being offered at below-cost prices. Probably a quick turnover was more desirable at that time than an exceptional profit and few sales. Also it appears, from the small amount of information on hand, that short-staple cottons and a considerable variety of types of waste were and are being used in the manufacture of such yarns.

The cotton fibers used in the samples of the yarn and net which you inclosed stapled ⅞ in. in length. This shows that short-staple cotton was used, and the baled raw cotton would cost approximately 11 to 12c. per pound and less, depending on the grade, etc. The cost to manufacture this cotton into the yarns (single and then twisted) would vary slightly according to the processes used. It seems possible that a profit of about 4 to 6c. per pound could have been made on the single yarn if it was sold at the 30c. per pound price mentioned. Of course quantity has much to do with the price, and the quotation you received may have been based on a smaller quantity than in the case of the mills which made the nets you examined.

Yes, these yarns could have been made out of certain wastes, such as peeler comber noils (.13¾c. per lb.) peeler flat strips (.13¼c. per lb.), yarn waste (approx. .07c. per lb.), and rags (reclaimed fiber at a few cents). These prices are for the waste itself and not the yarns made from them. To get waste-yarn prices, it would be necessary for you to get in touch with several mills making waste yarns, as such figures are not quoted publicly.

The single yarn in the samples appears to be approximately a 10s, and the ply shows 10-ply in the warp and 12-ply in the filling. Possibly there is a reason for these extra two yarns in the filling as against the warp; but, providing the filling ply can be made of the same construction as the warp, it might reduce costs some to do so.

It may be possible to obtain yarns at a price 3c. less per pound; but to do this it would be necessary that you contact mills that would reclaim their waste for you and process it on some of their present idle machinery, or you would have to buy up the waste and reclaim and spin it yourself. In the latter came, you would find the following machines necessary: hard-waste machines (2 to 4 beaters), hoppers or feeders and pickers (cotton type), cards, drawing frames, slubbers, possibly intermediates (depending on waste used), spinning frames, winders and twisters.

Hosiery Streaked

Technical Editor:

We are inclosing herewith a 45-gage, 5-thread, 20-turn, 90% stocking. You will notice a streaky appearance, which is a difference in color between one course and the next. Kindly let us have your opinion. (8214)

In the leg the machine is doing what is called slurgalling or making loose and tight courses, whereas the foot is very even. Suitable machine adjustment will overcome the trouble.

Polishing Cord

I am inclosing herewith a piece of polished cord. Please advise how this cord is polished; that is, what equipment is necessary and what ingredients are used for polish. Also kindly let me know the count of the yarn. (8201)

Cord of this type is usually polished on a twine polishing machine which is manufactured in England. There are very few machines of this type in this country. The finish can be closely duplicated, however, on a three-brush machine made in this country.

This sample has a very high and stiff finish. To obtain this finish, it is necessary to boil out the yarn thoroughly in a dilute solution of caustic soda before dyeing. This is to remove the oils and waxes, which act as a resist to the dye and to the sizing material.

The dressing machine should be run very slowly to allow the size to dry. The speed of the first brush should be approximately 400 r.p.m.; the speed of the second and third brushes approximately 425 to 450 r.p.m. The steam coil under the brushes should be raised as close as possible to the brushes in order to maintain as high a temperature as possible. The machine should be fitted with a creased roll in front of the first and second brushes to keep the twine rolling; otherwise it will polish flat, rather than round. After the twine has passed through the size and gone over the brushes onto the take-up, best results are obtained by allowing it to stand over night on spools before winding. This permits the sizing material to dry and to set firmer than it would if the twine was wound immediately after dressing.

There are several different formulas used for this type of work. One which can be employed as a starting formula is as follows:

Potato starch	20 lb.
Vegetable gum	5 lb.
Gum tragacanth	4 lb.
Soap	4 oz.
Animal glue	3 lb.
Yellow bees-wax	2 lb.
Paraffin wax	1 lb.
Coconut oil	2½ lb.

In order to keep the size from scouring, add either 1 oz. of copper sulphate or 5 oz. of sodium benzoate. The sizing solution is made up in a 50-gal. barrel, boiled for 20 min., allowed to cool, and used in the dressing machine cold. The water used in making up the size should be fairly soft.

Due to the heavy sizing, it is rather difficult to determine the count of the cord. We judge that the cord is equivalent to a 1 or 1¼ singles yarn. The cord is, of course, a three ply. The dye employed is a direct color, fast to acid, apparently Scarlet 4BS.

Faulty Hosiery Seams

Technical Editor:

I am sending you some hose from the seaming department. I am having trouble in producing good seams. Please check them according to the markings on each stocking and let me have your suggestions. The stocking marked No. 1 is the size and type of seam required, which is easy enough if all other things are in line. I have been in the seaming department several years and, personally, I think this should be corrected in the knitting department. (8209)

This is not a seaming problem at all. The trouble simply is ragged selvages from the legger, and the defect cannot be corrected in the seaming.

White Deposit on Hosiery

Technical Editor:

We are inclosing a 6-thread, 42-gage silk hose. On inspecting the heel, you will notice a white substance appearing at the start of the heel. This occurs periodically and we have examined different lots for oil stains but are unable to find any trace of same. The stain always occurs at the junction of mercerized and silk, but always in the mercerized yarn. Kindly let us have your opinion as to the cause of this. (8241)

Examination of this hosiery fails to disclose the nature of the spots or the way in which they were acquired. The white substance does not dissolve in warm hydro-

QUESTIONS AND ANSWERS

chloric acid, and we are inclined to believe that it is a combination of calcium chloride and calcium sulphate picked up by the stockings during the manufacturing or dyeing operations.

Black Specks in Throwing

Technical Editor:
I am twisting 100/60 Chalkalle rayon on Atwood single-deck spinners and cannot seem to be able to get away from small black specks on the finished yarn. I believe they are caused by small fibers of rayon yarn which stick on the flyers and become black after ten to twelve hours of spinning. When the deposit becomes too large, it flies off the flyer, attaching itself to the thread so that even the cleaner blades will not remove it. Anything you know of that may help me make a clean thread will certainly be appreciated. We do not have this trouble with bright yarns, only with the Chalkalle or very dull yarns. (8210)

The condition mentioned is caused by excessive friction or tension during twisting. Tension on this type of yarn should not exceed 20 grams on a tensometer. Check your flyer shapes and wire sizes to obtain the desired tension. Dull yarns are weaker than bright yarns and you would naturally experience more difficulty on the former.

Spinning Qualities of Top

Technical Editor:
We shall appreciate your opinion on the spinning qualities of the samples of 64s top enclosed. The yarn being spun is 1/30s count, and our customer prefers yarn spun from sample No. 1. We are sorry that we are unable to send you a sample of yarn, but the breaking tests were as follows: Yarn from top No. 1, 3.75 oz. Yarn from top No. 2, 4.00 oz. These are averages of twenty breaks. The jaws on the yarn-testing machine were 24 in. apart at the commencement of each test. (8238)

It is not surprising that you prefer yarn spun from sample No. 1, if color determines your choice; but your question refers to spinning qualities. As received, sample No. 1 represented the whiter top, and sample No. 2 represented the yellower shade of top. Staples and colors are as follows:

	Max. Staple	Average Staple	Color
Top, No. 1 Sample	5⅜ in.	2½ in.	White
Top, No. 2 Sample	5¼ in.	2⅜ in.	Cream

Sample No. 2 has a much better draw or pull. Therefore it should spin much better and produce a stronger yarn; indeed we would expect it to show a greater difference than is shown in the test. Sample No. 1 is a beautiful white, having the appearance of a slightly bleached wool—a peroxide white, we might say. At first we thought it was tinted, but upon washing a sample, we found that the white was improved by the process.

We regret that samples of yarn were not available, for the top leads us to expect a much more even yarn from the processing of sample No. 2. This opinion is also supported by the breaking-strength tests, which were of course single-strand tests.

Providing the yarn is even enough, knit goods produced from sample No. 1 would have more sales appeal, whether white or dyed, for even the dyed fabric would be brighter due to the original whiteness of the wool. The same is true also as regards woven fabrics, for in our estimation sample No. 1 is very suitable for delicate-shade piece dyes.

Drag Marks on Silk Fabric

Technical Editor:
Inclosed you will find a sample of tricot pure-dye silk which has what we call drag marks. This silk was boiled off in the piece in a boil-off box over night with approximately 20% soap. The next morning it was put on a dye beck and boiled off further for about one hour. It was then dyed in a soap bath—pH about 8.7. The finished material had the marks which you will note on the inclosed sample.
These marks evidently did not come from rubbing on the reel or from tangling or rubbing against each other, because all these things have happened in the past and we have not had drag marks. (8243)

The marks on this fabric are what are generally called "chafe marks" and are due to excessive alkaline and mechanical action, which causes the disintegration of the silk fibers and the formation of floss on the surface of a fabric. Ordinary hard-natured silks can stand the action of the soap in the boil-off and the mechanical action of the dyeing without being affected. However, careful silk dyers do not trust to a routine procedure, but examine the silk from time to time to see when the boil-off is complete, because the silk may not be as hard-natured as was expected. The softer silks cannot be given the same time or strength of soap as the harder silks, without harm resulting. The statement that this silk was left in the boil-off boxes overnight indicates that it was given a routine boil-off without the careful inspection which would have indicated when it was completely free of gum. It may have been completely clean in two or three hours, but was left in the soap bath until the next morning, because that was routine procedure. When an alkali acts on silk, it causes the fibers to break up into finer fibers, called fibrillae, which break on the surface and curl up into nubs, called "silk lice." When there are simply a great number of these frayed-out fibers which have not yet curled up, they give the appearance of a smoky haze on the surface. If silk is already damaged, it does not require much action of a dye reel to make the goods appear chafed; but if the silk was still strong and solid, this would not occur until it had run for several hours in the dye liquor.

We believe that this silk has been given too severe a boil-off and that it is a softer-natured silk than the former lots which came through satisfactorily. The fabric also feels very soft, much more so than a piece of hosiery of similar gage, which is made of a hard silk. It is necessary to adjust the boil-off to the silk; the silk will never adjust itself to a hard boil-off.

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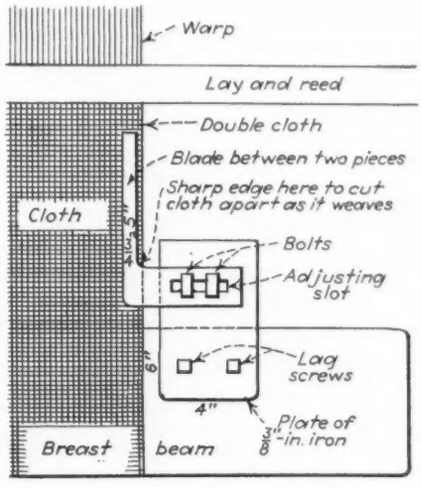
CORRESPONDENCE

Pick-and-Pick on 4 x 1

Technical Editor:

With reference to question 8203 (June, page 105), I trust the accompanying diagram will be of some use in helping this man in his problem. This represents a



temple used on a pile-fabric loom for holding out the cloth. Since it is designed to cut itself out of the goods, it will serve to cut apart any two pieces of cloth. The edges can be bound by running a leno weave in the outside ends of the selvage. If this diagram is not clear, write me and I will advise further.

Superintendent of Weaving.

Technical Editor:

I have just read question and answer 8203 in your June issue. I have successfully worked out what the inquirer needs and offer the following suggestion for him to try:

Take two flexible wires of the type used in narrow-fabric manufacture and employ them as the list. Tie them at the whip roll, draw them through the heddle and reed, and put them in the temple. They should be long enough to extend to about 2 in. from the edge of the breast beam. The wires will remain stationary and catch the filling, and the cloth will roll by as it is woven. They will afford a space of about ¼ to ½ in. to permit very easy cutting at the side. As for the cutting, I recommend that he try a Draper temple cutter and remake it to fit close or between the wires after the cloth passes the temple. I know that this idea is practical and I wish him success in trying it.

H. W. Bagley,
Designer, Glen Woolen Mills,
Norwich, Conn.

We wish to acknowledge the offers of assistance from other readers. These have been passed along to the inquirer.

THE PERSONAL PAGE

Ingram Bergman, elected president of National Knitted Outerwear Assn.

Lincoln Baylies, Nashua Mfg. Co., who heads N.A.C.M. conformance committee

W. M. McLaurine, who heads A.C.M.A. conformance committee.

Tom Tarwater has been elected president of Rockwood (Tenn.) Mills to succeed the late **Polk Tarwater.** Tom Tarwater is also manager of Harriman (Tenn.) Hosiery Mills and is expected to succeed Polk Tarwater there as president also.

E. Gray Bost has been appointed treasurer of Cannon Mills Co., Kannapolis, N. C., succeeding **G. B. Lewis,** resigned. **Hearn Swink,** of China Grove, N. C., was named a director to fill the place of Mr. Lewis.

John S. Britton has been named president of Bay Co., Bridgeport, Conn., subsidiary of Parke-Davis Co., succeeding **Charles U. Bay,** who has become chairman of the board. As noted, **C. A. Willard** has resigned as treasurer and assistant to the president. Other new officers are: **Oscar W. Smith,** vice-president; **N. H. F. McLeod,** secretary-treasurer.

Nathan Durfee has resigned as vice-president and manager of American Printing Co., Fall River, in process of liquidation. **N. Barry Durfee** has resigned as assistant treasurer to become assistant general manager of Cranston (R. I.) Print Works. **A. E. Hendershot** will act as assistant treasurer of American Printing Co.

S. R. Fuller, president of North American Rayon Corp., has been in Alaska as a member of the commission appointed by President Roosevelt to investigate the pioneering settlements in Matanuska valley.

C. W. Gurnham, who has been acting secretary-treasurer of Montreal Cottons, Ltd., since H. A. Wilson's death on May 21, has been appointed secretary-treasurer officially.

Chester C. Bassett has been made assistant sales manager of American Bemberg Corp.

Ralph Wirth has been advanced to the position of manager of Appleton Woolen Mills, Reedsburg, Wis.

D. A. Jewell, Jr., has been elected president of Crystal Springs Bleachery Co., Chattanooga, Tenn., succeeding his father, the late D. A. Jewell. **R. H. Jewell,** formerly treasurer, was made vice-president, and his assistant, **C. Callway,** was made treasurer.

J. C. Montjoy, formerly with Enoree Mills, has been made superintendent of Arkwright Mills, Spartanburg, S. C., succeeding **Marshall C. Stone,** who has gone to New Holland (Ga.) Mills in a similar capacity.

H. S. Lovern, for 29 years superintendent of Walker County Hosiery Mills, Lafayette, Ga., has retired after being identified with the knitting industry for 45 years. He was succeeded by **R. C. Stuart,** formerly with Chipman-La Crosse Hosiery Mills Co., Flat Rock, N. C.

Peter Lehne, manager of sales for the Hawthorne Division of the United Piece Dye Works, and **Theodore J. Van Twisk,** in charge of raw goods at the Duplan Silk Corp., have resigned those posts, effective Aug. 1, to jointly assume the sales management of National Weaving Co., succeeding **Charles G. Ashmann,** who resigned to become manager of the rayon dress goods department at Federated Textiles, Inc.

Percy Miller, formerly vice-president and secretary of the Winchester (Va.) Woolen Mills Co., has been elected president to succeed **Charles P. McVicar,** who has headed the organization since its formation four years ago. Mr. McVicar becomes treasurer of the company in the place of **Marvin Weaver,** who was chosen secretary. **Elwood Smith** was elected vice-president in the place of Mr. Miller.

S. F. Sherman has been appointed general manager of the Somerset plant of John Watts & Sons, Roxboro, N. C. Mr. Sherman was formerly associated with John F. Street & Co., Philadelphia.

T. F. O'Brien, stylist and technician, has resigned from H. R. Mallinson & Co., to join the newly organized R. W. Bates Piece Dye Works, Haverstraw, N. Y., as vice-president and general manager.

G. T. Fisher has been elected vice-president and assistant secretary-treasurer of St. Pauls (N. C.) Cotton Mills Co., Inc. **A. R. McEachern** has been elected secretary and treasurer to succeed **J. M. Butler, Sr.,** resigned.

Prof. W. E. Shinn, head of the weaving and designing division of Clemson College (S. C.) Textile School, has resigned to accept a position with North Carolina State College Textile School.

J. W. Hames has resigned as superintendent of Tifton (Ga.) Cotton Mills.

Donald Barnes, of Uxbridge, Mass., has been made superintendent of the southern plants of Uxbridge Worsted Co., Inc., which recently acquired Standard Cotton Mills, Cedartown, Ga., and Adams-Swirles Cotton Mills, Macon, Ga.

Ernest Dallis, of Atlanta, has been appointed publicity director of the American Cotton Manufacturers Association. A promotional program is being planned in which the southern State associations will cooperate with the A. C. M. A.

W. W. Morrell, for 28 years with the Roxboro (N. C.) Cotton Mills, has been appointed superintendent of the Langhurst Mill at Jalong, N. C., and the Roxboro Cotton Mills. He succeeds the late **J. W. Allgood.**

C. M. Mickie is now superintendent of the Somerset plant of John Watts & Sons, Roxboro, N. C.

H. M. Mercer is now head accountant and buyer for the Firestone Cotton Mills, Loray, N. C.; **R. L. Sanborn,** assistant.

J. C. Farmer, overseer of the carding department of the Roanoke Mill Co., Plant No. 1, Roanoke Rapids, N. C., has been transferred to the Patterson Mills in the same city as overseer of the carding and spinning departments.

E. B. Covington, formerly of Danville, Va., is now overseer of the finishing department of the Pilot Mills, Raleigh, N. C.

R. H. Rouse has resigned his position with the Oneida Mills, Graham, N. C., and has accepted the position of overseer of the weaving department of the Pilot Mills, Raleigh, N. C.

Russell S. Payne, of Worcester, Mass., was elected a director of the Lockwood Mfg. Co., Waterville, Me., at the annual meeting of the board of directors and stockholders.

R. C. Stuart, formerly connected with the Chipman-LaCross Hosiery Mills, Flat Rock, N. C., is now superintendent of the Walker County Hosiery Mills, LaFayette, Ga.

H. P. Thomas, formerly overseer of spinning at the Villa Rica (Ga.) Mills, is now general superintendent of the mills.

Robert J. McConnell has resigned his position as superintendent of the Pequot Mills, Salem, Mass., to accept a position with the Whiting Machine Works, Whitinsville, Mass.

Jules Fei, formerly manager of the converting and examining department of Duplan Silk Corp., has opened his own office as consultant in New York City.

Frank W. Davis, who has been with the Firestone Rubber Co., Akron, O., will be in charge of the raw cotton department of the Firestone Mills, Inc., which purchased the plant at Gastonia from the Manville-Jenckes Corp.

Show Rainwater, overseer carding and spinning, plant No. 3 of Entwistle Mfg. Co., Rockingham, N. C., has been promoted to assistant superintendent. **C. P. Waldrop,** overseer of weaving plant No. 2, also has been promoted to assistant superintendent. Both men will retain their regular duties as overseers.

J. W. Hames, formerly superintendent

of the Tifton (Ga.) Cotton Mills, has become manager of the Avondale Mills at Stevenson, Ala., succeeding **J. E. Warren,** who has rejoined the Belvelle Mills, Alexander City.

C. M. Michie has become superintendent of the Somerset plant, John Watts & Sons, at Roxboro, N. C.

J. C. Pirkle, for the last four years superintendent of Mary Ann Mills, Stevenson, Ala., has tendered his resignation, according to reports.

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Obituary

Simeon B. Chase, aged 86, treasurer of King Philip Mills, Fall River, from 1885 until the plant was purchased by Berkshire Fine Spinning Associates in 1930, died July 18. Mr. Chase also served as a director of a large number of other textile mills.

Walter Stafford, aged 71, senior member of the firm of Stafford & Holt, Inc., Little Falls, N. Y., knitting machine manufacturers, died at his home there July 21.

Melvin B. Horton, aged 72, formerly treasurer of the now defunct Mechanics Mills, Fall River, died July 21 in that city.

J. Fletcher Comer, aged 59, vice-president of Avondale Mills, Birmingham, Ala., died July 8.

William Baynard Willingham, aged 76, of Atlanta, Ga., vice-president of Egan Cotton Mills and of Piedmont Cotton Mills, Egan, Ga., died at his home in Atlanta, July 9.

L. H. Caldwell, vice-president and director of Mansfield Mills, Inc., and a director of Jennings Cotton Mill, Lumberton, N. C., died last month.

Lester D. Marsh, former president of the Mystic Knitting Co., founder and for 30 years treasurer of the Yale Knitting Co., Malden, Mass., died at his home in that city on July 11.

Lester B. Chisholm, formerly general manager of Everlastik, Inc., Chelsea, Mass., of American Mills Corp., Waterbury, Conn.; of the Moore Fabric Co., Pawtucket, R. I.; and recently contact manager of United States Rubber Products, Inc., Providence, died on July 9.

Charles J. Fishman, aged 44, director of research and assistant merchandise manager of Real Silk Hosiery Mills, Indianapolis, died recently.

Robt. D. Powell, aged 76, former manager of woolen mills at Lebanon, Tenn., and Murfreesboro, Tenn., died July 22 in the latter city.

Nathaniel Niles Thayer, Boston, Mass., formerly active as a cotton merchant, died July 22. He began in 1880 with Barry, Thayer & Co., as junior partner, and later was a member of Thayer, Dearing & Co., retiring in 1923. He was 78 years old.

Donald M. Ross, aged 60, head of the colored goods section of the Toronto sales division of Dominion Textile Co., Ltd., Toronto, Ont., died recently in that city.

George O. Rockwood, inventor of the Rockwood Drive, made by the Rockwood Mfg. Co., of Indianapolis, Ind., died last month.

W. A. Smith, aged 60, for 35 years with the Wiscasset Mills, died at his home in Albemarle, N. C., July 2, following a heart attack.

James D. Buice, aged 65, former superintendent of the Chadwick-Hoskins Mills at Charlotte, N. C., died July 4 at a Charlotte hospital following a stroke of apoplexy.

Francis Perrou, aged 50, for many years superintendent of the Waldensian Hosiery Mills, Valdese, N. C., died suddenly July 16.

Lemuel J. Coburn, formerly a New England woolen mill executive, died suddenly last month at Los Angeles, Calif., where he had been living for the last few years.

Grant Sipp, aged 68, president of Sipp-Eastwood Corp., Paterson, N. J., textile machinery manufacturers, died July 29 at a Torrington, Conn., hospital. He founded the Sipp Machine Co., predecessor of the present firm, 40 years ago.

Louis La Poutre, head of La Poutre & Co., a branch of the La Poutre textile interests of Roubaix, France, died recently in France. His firm had part ownership in LaFayette Worsted Co. and Rochambeau Mills, both of Woonsocket, R. I., as well as extensive holdings in various European countries.

"THE PIONEER"

CAPT. ELLISON ADGER SMYTH, dean of southern cotton manufacturers, is the central figure in a book entitled "The Pioneer," by William P. Jacobs, of Clinton, S. C., secretary of the Cotton Manufacturers Association of South Carolina. This book deals with the early stages of the development of the southern textile industry, and also sketches briefly the lives of a number of the leading pioneers other than Capt. Smyth. These include: Dexter E. Converse, Col. Leroy Springs, Lewis W. Parker, Daniel A. Tompkins, William E. Beattie, Edwin M. Holt, James W. Cannon, John H. Montgomery, Fuller E. Callaway, William A. Erwin, Henry P. Hammett, Moses H. and Caesar Cone, Braxton Bragg Comer.

The author points out in the introduction that it is merely incidental that the story is largely based upon the life of an individual, Capt. Smyth. The latter, in fact, was most reluctant to consent to this use. However, states Mr. Jacobs, "in his interesting life is found such a perfect example of the constructive influence of a pioneer that the story of his life is woven into each phase of the subject."

C. I. T. Earnings at New High

Commercial Investment Trust Corp. in its report to stockholders for the six months ended June 30 shows consolidated net profits available for dividends of $7,256,517 compared with $5,100,215 in the first half of 1934. According to the report the volume of receivables acquired totaled $539,324,877 compared with $437,789,307 in the corresponding period last year. The results establish a new high record for any six month period.

List of Government Purchasing Offices Available

The machinery division of the Bureau of Foreign and Domestic Commerce, Washington, D. C., has prepared an unofficial list of purchasing agents of the Federal Government, which includes not only the main offices in Washington but the field purchasing agencies all over the United States. It is believed that this is the first time such a full list has been made up by any Government department. It should be of practical use to any firm interested in selling machinery, equipment, or supplies to the Government. Copies may be obtained, free of charge, by writing to the above division.

Research at M.I.T.

A review of textile research at Massachusetts Institute of Technology, Cambridge, is contained in a report just issued by Dr. Karl T. Compton, president. Current projects include development of apparatus and technics for mechanical and microscopical testing, X-ray analysis, applications of polarized light, high-speed motion-picture photography, direct-color photography, use of photronic cells, microbiology, spectrophotometric color analysis of dyed textiles, organic chemistry of dyes, development of an automatic crimp tester, devising apparatus for determining thermodynamically the rate of moisture regain and the hysteresis effect, constructing a power-driven resilience tester, developing a device for measuring corkscrew in yarns, calibrating immersion fluids for determining refractive indices of fibers, study of fiber structure and orientation, microscopic study of yarn structure and properties, preparation of longitudinal and cross-sectional mounts of hundreds of fibers for identification of unknown specimens, stereoscopic photomicrography, microscopic motion-picture photography, and determination of cotton quality by micro and electrical methods. In addition, individual problems submitted by mills are being investigated in the institute's laboratory.

Textile Calendar

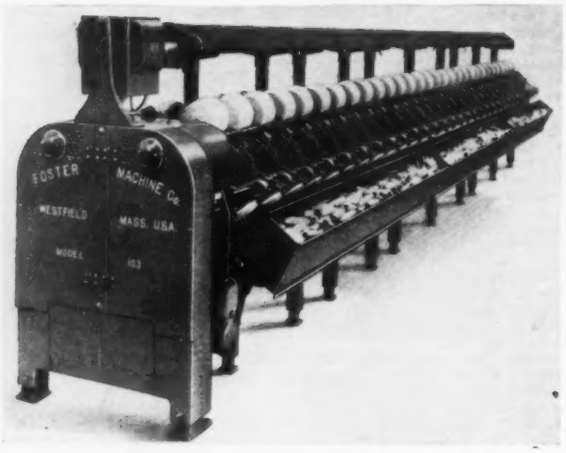
American Association of Textile Chemists, annual meeting, Chattanooga, Tenn., Dec. 6 and 7, 1935.

Fifteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 2-7, 1935.

Columbia Offers Silk Course

J. J. Reutlinger, of Hatch & Reutlinger, textile specialists, New York, has been appointed instructor in a new evening course on silks beginning with the fall semester, it is announced by Evening Extension, Columbia University, New York.

NEW MACHINERY



Improved Cone Winder

Featured in the new Model 103 cone winder recently placed on the market by Foster Machine Co., Westfield, Mass., is a special conical driving roll and yarn guide. The cone winder, itself, is designed for winding warp yarn in mills where high winding speed is not detrimental to the yarn. It is maintained that top speed is limited only by the "give-off" of the yarn from bobbin, cop or supply package. This new winder is of the rotary guide type, but without reciprocating yarn traverse parts. Regular Foster features include empty bobbin elevator and conveyor, automatic self-threading tension, and slubcatcher and dropwire for quick end-piecing.

Mechanical difficulties in winding a cone package, driven by a parallel winding roll, previously were overcome by means of a loose shell at the end of the parallel roll on which the small end of the cone rests. Since the driving roll on the new cone winder is also the yarn traverse guide, a loose shell cannot be used to prevent yarn chafing and other winding troubles. The Model 103 driving roll, being conical in shape, has an angle of pitch or taper designed to conform with the average taper of the winding package and prevent slipping or chafing at the small end of the package.

Cloth Baler

For baling cloth, an open-end, heavy duty press is announced by Economy Baler Co., Ann Arbor, Mich. A feature is the operating mechanism which has been inclosed in a dust-tight housing where it runs in oil. This is to avoid soiling the goods. Heavy link pull chains on each corner of the compression platen tend to distribute the load more evenly. Cloth can be baled without being removed from the truck.

Automatic Weight Controller

Delivery of fabrics at any predetermined weight by regulation of machine speeds is made possible by means of an automatic weight controller announced recently by D. R. Kenyon & Son, Raritan, N. J. The device is of special value in drying or conditioning fabric, where a certain percentage of moisture is desired. It can also be used in the coating of fabrics, by regulating the knife which determines the amount of the coating material. The controller is driven directly from the machine it controls, and, being completely ball bearing, requires but ¼ hp. to drive. It is fully automatic, only requiring the scales to be set to the predetermined weight. The controller can be made either to fold or roll the cloth, can be attached to any machine or suspended from the ceiling of the room, and occupies little more space than the ordinary folding or winding device. When used in conjunction with a dryer, it prevents overheating of the fabric and is said to increase the production of the machine.

Other features of the controller cited by the manufacturer are that it requires no other attention than to set the balance

at the desired weight, and all other operations are automatically controlled; it is entirely inclosed to prevent air currents from fictitiously operating it, but at the same time the balance or scales are readily accessible.

In order to obtain an accurate weight of the fabric in such minute quantities as 0.01 oz. or less, a very delicate torsion balance is used. At any desired spaced interval the fabric is stopped and dropped on the bar of the balance. This is done in order to prevent distortion due to the travel of the fabric over the balance while the weight is being determined. However, the machine which the device controls is kept in continuous motion, and its production is in no way decreased.

By means of photo-electric relays, any variation in weight over or under the predetermined weight, operates a reversing motor on a variable-speed control or a knife-regulating device, so as to change the speed of the machine or the position of the knife controlling the amount of coating material. The difference in change of speed is greater or less according to the amount the weight is over or under the predetermined weight. For example, if the fabric on leaving the drying or conditioning machine is overweight, indicating an excess of moisture, the device increases the speed; and if the fabric is underweight, it decreases the speed.

Cross-Section Slicer

Rapid cross-sectioning of fibers is facilitated by a simple device developed recently by Dr. J. I. Hardy, senior fiber technologist of the Bureau of

Animal Industry, U. S. Department of Agriculture. The new device makes it possible to cut cross-sections to 0.0001 in. without injury to the delicate internal structure of the fiber, and permit preparation of the sample ready for examination within 10 min. The cross-section slicer is being manufactured by Gosnell Mfg. Co., 802 F St., N.W., Washington, D. C.

The device is about 3 in. long and consists of three metal parts. A thin piece of metal contains a slot 0.0085 in. wide. A second thin flat piece of metal slides parallel to the first and pushes a short metal guide down the slot, pressing the fibers tight together in a vertical position. The third part contains a small metal plunger on the end of a supporting screw for pushing the fibers ever so slightly through the slot. After the fibers are inserted in the slot and secured firmly in it, they are cut off on both sides of the holder with a safety razor blade. The plunger is then swung into place and used to push the fibers from one side to the other according to the thickness of the cross-section desired. A drop of celluloid is put on the projecting ends which are then sliced off with the blade. The thin celluloid slice carrying the tiny disks of fibers is ready to be mounted on the microscope slide. The slicer holds hair and other fibers firmly without crushing and keeps them in proper alignment for accurate cross-sectioning. The celluloid solution dries quickly without soaking into the fibers.

Compensated Humidity Controller

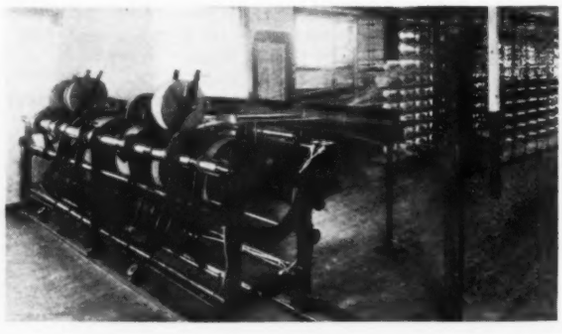
To eliminate frost or condensation on walls and windows, a compensated or differential humidity controller is now being manufactured by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. When the outside temperature varies, a remote control bulb, through an electrical connection, actuates a standard humidity controller inside the building. Condensation or frost is eliminated by dropping automatically the room humidity in proper ratio with the outside temperature.

Belt Splice

By means of a vulcanized splice introduced by Goodyear Tire & Rubber Co., Akron, Ohio, compass cord transmission belts may be made endless on the drive. The compass cord belt consists of a layer of cords laid side by side to carry the load. These cords are embedded in rubber and sheathed in a fabric envelope. To splice, the ends of the cord core are dovetailed together and vulcanized. This development is intended to enable belt users to obtain belting in roll lots for use on drives, where formerly it was necessary to dismantle the pulley before installing an endless belt.

Narrow-Fabric Warper

Cocker Machine & Foundry Co., Gastonia, N. C., is now building an improved narrow-fabric warper, equipped with six drums and a magazine cone creel of 360 running ends capacity. The magazine feature of the creel permits tying-in while the warper is operating at full speed, 300 yd. per minute. An eyeboard stop motion includes an annunciator system to indicate the location of broken ends. Since each side (three delivery heads per side) has its own motor drive, an end break affects only that side on which it occurs. The motors are equipped with magnetic brakes to prevent broken ends from getting on the beams. The warper also is equipped with a "full beam stop" on each side to facilitate doffing. A



AND PROCESSES

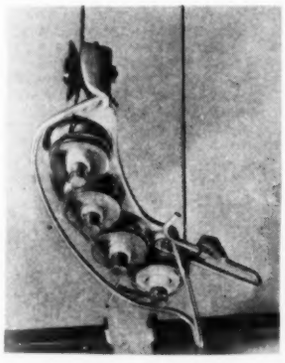
snubbing action on the beams tends to prevent slipping and to produce a hard level surface. It is asserted that this method of snubbing will permit warping 25 to 35% more yarn on each beam and thereby increase loom production. The warper is so designed that traverse and flat warping can be done separately or at the same time. The entire 360 ends can be put on one beam, or on six beams carrying 60 ends each. The machine comes equipped with means for leasing and with expansion combs for flat warping. Creels are obtainable in any size.

Freight Elevator Control

Otis Elevator Co., 260 Eleventh Ave., New York, has placed on the market an improved, constant-pressure, pushbutton control for freight elevators. This control, known as the Dualite, is designed for average freight service requirements insufficient to require a full-time operator. The control is so constructed that the car cannot be operated unless all hoistway doors are closed and locked, and no door can be opened unless the car is at that landing. The operator has complete control over the car, which automatically stops at the floor level with no "inching."

Winding Refinements

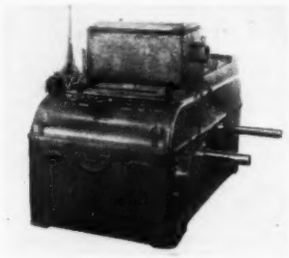
A new threading bail for use on the No. 90 Dis-quil tension for high-twist silk has been developed by Universal Winding Co., Boston. Use of this bail is said to overcome winding difficulties common to very high-twist yarns. A second refinement recently announced by this company is a special endless drive for the No. 50 machine using the L-type drive. The L-type drive is designed for use with a belt-gainer mechanism and includes a leather belt to connect the driving spindle with the cam shaft. When the leather belt is replaced with a permanent gear-gainer mechanism, the belt runs inside the gear-gainer case. The new drive is so constructed that the endless belt runs outside the gainer case.



Variable-Speed Transmission Developments

Recent developments in variable-speed control equipment manufactured by Reeves Pulley Co., Columbus, Ind., include a hydraulic control for variable-speed transmission, a new type motor base for more compact mounting of a gear reducer used in connection with the Vari-speed motor pulley, and an automatic variable-speed ratchet control.

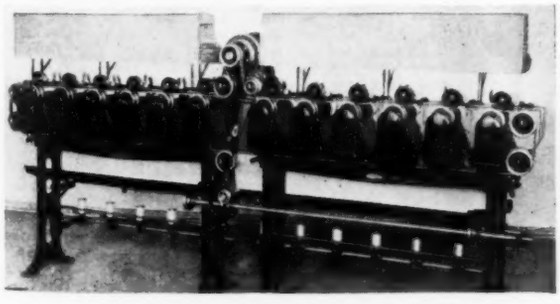
The hydraulic control, known as Hydraumatic, is expected by the manufacturers to be more universally adaptable than the

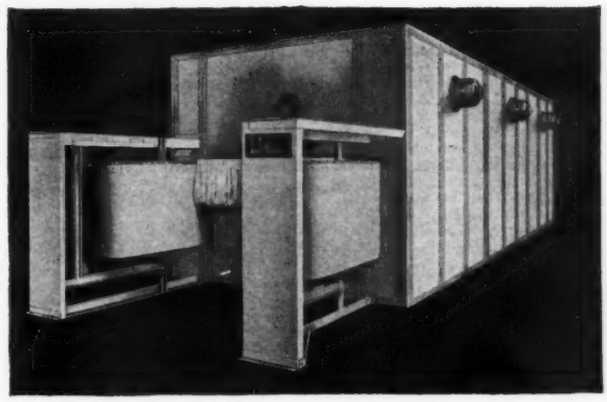


electric or mechanical controls which it supplements. This control is said to be sensitive to the extent that a pressure of 2 or 3 oz. on the indicating lever will bring about a variation in speed without "hunting" action. As with the other two controls, the Hydraumatic is actuated by an indicating lever attached to a compensating or floating roll, pressure regulator, moving part of the machine or other element from which indication of the required speed can be taken. Movement of the indicating lever is transmitted through a differential mechanism to the shifting levers which vary the diameters of the disks and V-belt, and consequently the speed of the driven machine.

The new motor base utilizes the standard stationary base of the pulley countershaft unit, with a sliding base in place of the countershaft. The gear reducer is placed on the sliding base which is bolted to the stationary base. This permits the Vari-speed motor pulley to drive direct to the reducer.

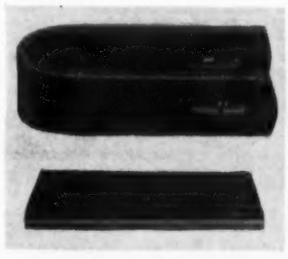
The ratchet control for automatic variable-speed regulation was built in recognition of the demand for a gradual decrease or increase of machine speeds over a period of time. The power input (constant speed) drives through the variable-speed transmission to the gear reducer by means of a roller chain. The output shaft of the reducer is connected by an adjustable arm to the ratchet, which is mounted on an extension of the speed-changing screw of the transmission. This adjustable arm permits an increase or decrease in timing as required. When the end of the run is reached, the transmission is shifted by hand back to the starting-speed position, and the ratchet is reset.





Leather Specialties

After testing its line of leathers in textile mills for over two years, Chicago Belting Co., 113 North Green St., Chicago, announces that it has developed several specialities of interest to mill engineers. These include jack, check, harness, hold-up, lug, and bumper straps; stop-bar break pads; picker leathers; cone belts; gainer belts, etc. These items are made of two leathers: Old Grizzly oak with hair, and White Strip. The latter brand is entirely new



and includes an extra strip of very hard white leather which is said to add materially to the life of the article in use. The mechanical design of the various items is more or less standard.

Electro-Hydraulic Temperature Control

An electric thermostat of the liquid expansion type equipped with a commutator switch carrying six separate contacts comprises a new system of temperature control placed on market by Wilbin Instrument Corp., 40 E. 34th St., New York. The thermostat operates a valve actuator, which consists of a piston moved in the cylinder by oil pressure generated by a motor-driven pump. The motor is operated by the thermostat in such a way that the valve adjusts itself to a throttling position (between open and closed) to maintain the desired temperature. The instrument has a temperature range of —50°F. to 950°F., and is designed for use with steam, water, oil, gas, brine, etc. The sensitivity of the thermostat and the speed of valve travel may be adjusted to synchronize with the heat cycle.

Rayon Dryer With Skein Protector

Development of a new silk and rayon dryer which is equipped with a traveling skein protector is announced by Proctor & Schwartz, Inc., Philadelphia. This skein protector consists of a flexible material hung skirt-fashioned from each of the two parallel runs of conveyor chains which carry the poles. Thus, a continuous wall on either side of the conveyor space flanks the poles, and moves through the machine at the same rate of speed at which the poles move. These walls extend well below the bottom loops of the skeins and keep them from whipping about and becoming frayed or soiled. Another function of the walls is to force the drying-air currents through a definite path.

Other refinements in the dryer include super-insulated housing to prevent heat loss, airstream interior design, larger fans which use less power, new heaters more nearly leakproof, greater strength, rigidity and compactness. The dryer is available either with or without cooling and conditioning sections.

Diaphragm Valve

An improved long-range throttling-top diaphragm valve has been developed by C. J. Tagliabue Mfg. Co., Park and Nostrand Ave., Brooklyn, N. Y. For adjusting the spring pressure, there is an arrangement which prevents the member in contact with the bottom of the spring from turning when the adjusting feed screw is turned. Instead, it moves up and down guided by the two vertical fins of the spider arms. The entire mechanism is arranged in such a way that there is no tendency for the spring to be wound up or otherwise disturbed.

Oscillograph, Time Meter and Condenser

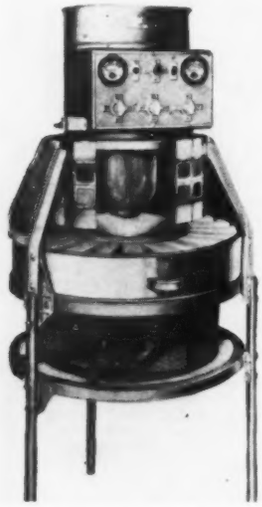
An oscillograph, and a time-totaling meter have been announced recently by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The oscillograph has a wide variety of interchangeable control panels to fit field or laboratory investigations. Also included is a selection of galvanometers for producing as many as eight records. Emphasis is placed on the following features: viewing and photographing may be simultaneous; daylight loading holder is constructed so that exposed film may be cut off

without disturbing supply; a variable-speed motor offers a wide variety of film speeds; galvanometers and vibrators are interchangeable.

The time-totaling meter is designed for totaling running or idle time on electrically operated machinery. The registering mechanism has four dials and will register 9,999 hours before repeating. By connecting the meter to the machine with a single pair of wires one can mount it anywhere in the plant. The device includes a self-starting, 120-volt, 60-cycle, synchronous, a.-c. motor.

Improved Fade-Ometer

Atlas Electric Devices Co., 361 W. Superior St., Chicago, announces an improved Fade-Ometer, known as Type FDA. Refinements include an automatic, shut-off, time-indicating clock which can be set to shut off the power at any predetermined time. This clock also is designed to indicate lost or lapsed time caused by power interruption or failure. A second improvement is the control panel containing a voltmeter, ammeter, two arc-regulating switches, overload breaker and ventilating switch. These instruments are all designed to insure true tests and protect the Fade-Ometer. The arc lamp has a double lower carbon holder and is inclosed in a special Pyrex globe. A wick-



type humidifier, with electric blower and thermo-regulator, tends to prevent heat discoloration of specimens, which are suspended at eye level from a metal ring encircling the arc. Paper masks are available for exposing specimens in progressive stages.

High-Head Pump

For heads from 400 to 1,600 ft. and capacities up to 400 gal. per minute, Allis-Chalmers Mfg. Co., Milwaukee, Wis., has developed a new multi-stage pump, known as Type MM. This pump is particularly suitable for boiler feed, humidifier supply, and other high-head pumping service. Horizontal-shaft, split-casing, bronze-fitted, double-suction runners are designed to equalize end thrust and make internal-balancing arrangements unnecessary. Each stage of the casing has a spiral volute from which the liquid flows into an extra-size diffusion nozzle. From this nozzle it progresses into a long-sweep return bend to the inlet passages of the following stage. This construction is said to result in maximum practical regain of pressure between stages, as the liquid is directed along smooth flow lines without sudden changes in velocity. Pressure on the stuffing boxes is kept approximately the same as the suction pressure.

Hydraulic Variable-Speed Transmission

After having been tested commercially for four years, a hydraulic (oil) variable-speed transmission was introduced re-

cently to the textile trade by Vickers, Inc., 1400 Oakman Blvd., Detroit. This transmission essentially consists of a variable-stroke, multi-cylinder pump which drives a variable-stroke, multi-cylinder fluid motor. Any desired speed between 500 and 700 r.p.m. can be obtained by turning a handwheel to vary the stroke and delivery of the pump. Additional adjustments permit speeds to 2,500 r.p.m. Power consumption, regardless of load, is said to be kept at a minimum, since the torque is automatically controlled with no throttling or bypassing of the oil. Either end can be set to rotate in either direction. The pump and motor are mounted in a case which serves as an oil reservoir. There are no exposed working parts or piping, and outside lubrication is unnecessary.

Control Instruments

Two new control instruments, a reset controller and an intermitter or simplified time-cycle controller, have been announced by Taylor Instrument Cos., Rochester, N. Y. The reset controller is designed for use where a fixed differential must be maintained between two variables, one of which is under control. A second use is to change the control point of a process in accordance with a predetermined ratio to a secondary process or condition. Conditions may include temperature, pressure, liquid level, rate of flow, etc. This instrument employs one complete Fulscope control system and an extra tube system with pressure spring or manometer. The Fulscope system and actuating mechanism are separate yet interconnected by means of an adjustable linkage designed to permit control-point changes in a variety of ratios. Maximum ratio value is 5 to 1.

The intermitter is intended to be used in the automatic intermittent operation of diaphragm valves and other diaphragm-operated devices. It differs in function from the standard time-cycle controller in that it is limited to one operation, whereas the latter device is capable of performing a number of different operations during the revolution of the cam. Instead of employing the conventional fixed cam to time the intermittent operation of a diaphragm, the new intermitter has a circular cam on which the proper number of actuating lugs are placed. As many as twenty lugs may be used. The actuating cam is driven by a spring-operated clock.

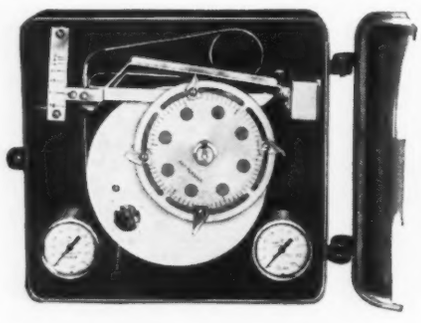
Vapor-Proof Light Fixtures

Designed for use in both indoor and outdoor locations where lighting equipment is subjected to rough handling, a line of vapor-proof fixtures has been placed on the market by Benjamin Electric Mfg. Co., Des Plaines, Ill.

Features of this line, known as Type V, include the following: lamp receptacle independently sealed to inner flange of fixture body; conduit system and wiring chamber constructed

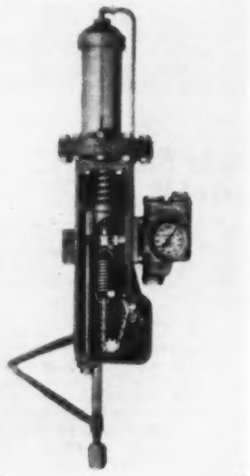
to remain tight despite broken or removed globe; aluminum guard (if specified) to protect globe; fixture body, streamlined to eliminate dust pockets, made of cadmium-plated, cast-iron alloy, tapped for conduit, and provided with internal conduit stops; one-piece, seamless-steel, closed-head reflectors furnished inside and out with acid-resisting porcelain enamel.

Other recent developments of this company include (1) Type II-G dust-tight lighting fixtures and (2) Nofuze circuit-breaker panel with dust-tight cabinet.



Controller Series

Type 100 series of controllers has been developed by A. W. Cash Co., Decatur, Ill., to control automatically the factors of combustion, pressure, flow, etc., which go into the operation of equipment driven by engines, turbines, or electric motors. These new controllers are self-



contained and consist primarily of an actuating member (diaphragm or lever), four-way control valve to govern flow of liquid or gas, built-in compensator, built-in double-acting power cylinder, and a simple range adjustment. Other features include "frictionless" diaphragm bearing, "frictionless and leakless" packing and valve, and a special suspension of the spring load to avoid side strains on the valve lever. The entire mechanism is protected by a dust-tight cover.

Ball-Bearing Line Extended

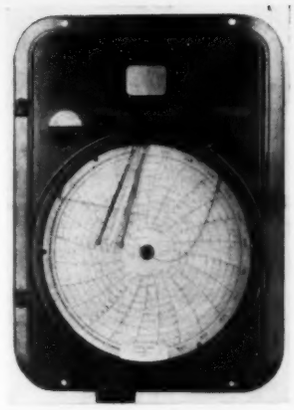
The GreaSeal line of felt-protected precision ball bearings has been extended to include three larger sizes—40-, 45-, and 50-mm. bores—according to a recent announcement by Norma-Hoffmann Bearings Corp., Stamford, Conn. This line includes three types of self-contained bearings. Each has a heavy felt seal between removable plates to avoid distortion of ball races and to insure quiet running. Two of the types are fully inclosed.

Belt-Cutting Tool

A flat-belt (8-in.) cutting tool, which employs a new principle in mechanical belt cutting, is announced by Flexible Steel Lacing Co., 4507 Lexington St., Chicago. The knife is mounted on a plunger in a slot, and the cut is made by pushing the knife through the belt from one edge to the other. While being cut, the belt is held in an equalizing clamp which also acts as a guard for the blade. Clamp and frame are made of aluminum alloy. The knife is made of alloy steel and is easily replaceable.

Flowmeter

Employing the orifice and mercury manometer system of flow measurement, an improved flowmeter has been introduced by Bristol Co., Waterbury, Conn. Features include uniform



cross-section in mercury chambers to insure accuracy, positive-action integrator to eliminate friction contacts and clutches, gravity check valves to prevent the loss of mercury, extra-long lever arm from float to pen arm, counterbalanced parts with welded or mechanical connections, forged steel case, and stainless-steel stuffing box lapped to shaft.

Business Literature

Pumps. Worthington Pump & Machinery Corp., Harrison, N. J. Series of booklets describing in detail single-stage volute vertical centrifugal pump, Freflo vertical pump for sewage, drainage and sump service, air-lift pumping systems, deep-well turbine pumps, No. 5 sump pump, Types VS and VA2 air compressor units, Type PC horizontal duplex piston pump, surface condenser, and Monobloc pumping units.

Valves. Fairbanks Co., 393 Lafayette St., New York. Illustrated 56-page catalog containing 96 descriptions of valves and information about dart unions.

Thermometers. C. J. Tagliabue Mfg. Co., Brooklyn, N. Y. Catalog No. 1125 listing the complete TAG line of industrial thermometers, gages and barometers.

Power Transmission. Medart Co., 3500 DeKalb St., St. Louis, Mo. Illustrated 144-page catalog containing specifications, descriptions, list prices, engineering data, etc., for complete line of power-transmission equipment.

Warp Compressor. Davis & Furber Machine Co., North Andover, Mass. Leaflet describing the duplex warp compressor and other warping equipment.

Flooring. Maple Flooring Manufacturers' Association, Chicago. Architects' 1935 edition of grading rules and standard specifications as related to northern hard maple, beech, and birch floorings.

Hand-Loom Accessories. Steel Heddle Mfg. Co., Philadelphia. Pamphlet devoted to hand-loom accessories.

Lubrication. Stewart-Warner Corp., 1826 Diversey Parkway, Chicago. Revised mid-year 1935 Alemite power-gun equipment catalog in natural colors.

Valves. Ohio Injector Co., Wadsworth, Ohio. Comparison chart of OIC figure numbers with serial numbers of other manufacturers.

Rubber Belts. Gates Rubber Co., Denver, Colo. Bulletin describing rubber belts.

Paint. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. Folder containing "before and after" pictures of mill rooms with reference to "Dulux" mill white.

Picking, Roving, and Spinning Machinery. Whitin Machine Works, Whitinsville, Mass. April issue of *Whitin Review* containing articles on repairing machinery, modern twisting, and a new spinning traverse motion.

Winding Machinery. Universal Winding Co., Boston. Pamphlet describing new "Roto-Koner" coning device.

Spindle Bolsters. SKF Industries, Inc., Philadelphia. Folder devoted to different types of roller-bearing spindle bolsters.

Processing Machinery. F. J. Stokes Machine Co., Philadelphia. First issue of house organ *Process News* to be issued at intervals during the year.

Printing. Philadelphia Quartz Co., 121 South Third St., Philadelphia. April issue of *Silicate P's & Q's* containing article devoted to silicates in connection with textile printing.

Igepon T. General Dyestuff Corp., 230 Fifth Ave., New York. Booklet discussing properties and applications of Igepon T.

Static Neutralizer. U. P. M.-Kidder Press Co., Dover, N. H., Bulletin describing Chapman Electric Neutralizer.

Refractory Brick. Harbison-Walker Refractories Co., Farmers Bank Bldg., Pittsburg, Pa. Folder describing refractory and insulating qualities of bricks used in lining furnaces.

Tape Condensers. Davis & Furber Machine Co., North Andover, Mass. Supplementary bulletin to Tape Condenser catalog.

Humidity gages. Julien B. Friez & Sons, Inc., Baltimore, Md. Illustrated catalog listing complete line of instruments for measuring air and weather conditions.

Adhesives. National Adhesives Corp., 820 Greenwich St., New York. Two booklets describing the preparation and uses of glues, pastes, and gums.

Silicates. Philadelphia Quartz Co., 121 S. Third St., Philadelphia. January issue **Silicate P's & Q's** presenting chart by which comparison in terms of pH can be made between sodium sesquisilicate and other alkalies.

Switchgears. General Electric Co., Schenectady, N. Y. Leaflet citing advantages of metal-clad switchgear.

Oxy-acetylene Welding. Linde Air Products Co., 30 East 42d St., New York. January issue **Oxy-acetylene Tips** containing articles reviewing progress of various welding processes and developments in alloy-steel.

Dyes. General Dyestuff Corp., 230 Fifth Ave., New York. Color card of Palatine Fast Dyes on pure and weighted silk, showing simple and compound shades and giving fastness properties.

Textile Chemicals. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. Bulletin 1—Wetting, dispersing, scouring, and emulsifying agents, etc., for cotton, wool, silk, and rayon. Bulletin 3—Solvents and plasticizers.

New Publications

Industrial Planning Under Codes, by George B. Galloway and associates; Harper & Brothers, New York; 428 pp.; $4.00.

Despite the sudden and, to this reviewer, untimely demise of NRA, the experiences of major industries with NRA codes continue to be a source of vital information which must be applied to the problems of the present and the future. Consequently this volume, which reviews and analyzes such experience for 15 industries, is a most welcome one. Each chapter is written by an expert in the field. In addition to the 15 industrial chapters, the editor has contributed four introductory chapters which consider the concept of planning, a brief history of industrial control in the United States before 1933, and the relation of NRA to industry planning.

The textile chapters of the book include one on the cotton textile industry by George A. Sloan, former chairman of the Cotton Textile Code Authority, and one on the woolen and worsted industry by A. Henry Thurston, deputy administrator NRA.

Textile Yearbook and Consolidated Catalogs, Textile World Publications, McGraw-Hill Publishing Co., New York; 425 pages; one copy free to every American textile mill; additional copies to mill or employee, if ordered on company letterhead, $2.50; to other than textile mills, $5.00; one copy free to every foreign mill willing to pay customs charge.

This volume is notable as the first yearbook (or handbook) to be compiled for the entire American textile industry.

Possibly the most important and useful portion of the book is a 28-page section crammed with reference data in the form of tables, charts, and formulas for cotton, wool, rayon, silk, knitting, and processing mills. The subjects covered in this section range from tests for identifying fibers to cloth analysis.

Another valuable section lists all the standards which have been developed for textile materials by trade associations and government departments.

The yearbook also contains a bibliography of textile books, including those both in and out of print, with prices of the former and names and addresses of the publishers; technical and statistical surveys of the previous year; descriptions of new equipment; and directories of textile associations and schools.

The catalog department is by no means the least useful portion of the book, as it lists, describes, and illustrates the equipment and supplies offered to the textile industry by over 200 manufacturers. The complete buyers guide is not limited to advertisers in the book, and a special and much-needed section is devoted to chemicals.

Skinner's Cotton Trade Directory of the World—1934-35; Thomas Skinner & Co., London, England; 20s.

A new feature of the twelfth edition of this directory is the addition of a list of spinners in Great Britain of Indian and waste yarns. The knitting section has been considerably augmented, and other sections have been thoroughly revised.

The Lancashire Textile Industry—1935; John Worrall, Ltd., Oldham, England; 17s.

The 51st edition of this directory and year book has been revised with the usual care which makes this publication a comprehensive guide to the textile industry of Lancashire.

A Basis for a Performance Specification for Women's Full-Fashioned Silk Hosiery, by H. F. Schiefer and R. S. Cleveland; National Bureau of Standards Miscellaneous Publication M149; Superintendent of Documents, Washington; 5c.

The authors report hosiery tests and recommend that in a hosiery-performance specification the following be included: minimum limits for distensibility, recoverability, and stretch-endurability of the stocking; a classification of hosiery based on the thickness of two layers of the leg fabric; tolerances for size and length of stocking; and a requirement for color fastness to laundering.

Business News

Commercial Credit Co., New York, has acquired the factoring concern of **Edmund Wright Ginsberg Corp.,** for a reported price of 35,000 shares of Commercial Credit stock.

Industrial Dryer Corp., Stamford, Conn., has appointed **W. A. Kennedy, Inc.,** Charlotte, N. C., as its southern representative.

Staley Sales Corp., Decatur, Ill., announces that John A. Harris is now in charge of the North Carolina territory, with headquarters at Greensboro, N. C. Mr. Harris, who succeeded LeRoy Smith, was for a number of years representative in the Alabama-Mississippi territory, where H. A. Mitchell is now in charge.

Moore & Thies, textile cost engineers, successors to **Rhyne, Moore & Thies,** announce that Robert A. Morgan has become associated with the firm as textile engineer.

Gustavus J. Esselen, Inc., chemical research and development, announces the removal of laboratory and office to 857 Boylston St., Boston.

Kenney-Herstein, Inc., New York City, has been formed and will engage in the field of consulting chemistry. Mr. Kenney served for 15 years as chief chemist at the central testing laboratory of the city of New York.

Robert Gair Co., New York, announces the removal of the New England sales office to 77 Summer St., Boston.

Louis S. Carter, South Manchester, Conn., formerly treasurer of Cheney Brothers for 35 years, has been elected a director and treasurer of the Clogston-Haskell-Michaelis Co., New Haven, Conn., designers and manufacturers of modern packages for all kinds of commodities.

C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., announces the appointment of E. D. Wacker as assistant general sales manager.

American Machine & Metals Mfg. Corp. on July 1 became one of the two subsidiaries owned 100% by **American Machine & Metals, Inc.** The other is the mining company. The Tolhurst Extractor organization of Troy, N. Y., operates as the Tolhurst Division. J. S. Jones is plant manager at Troy.

Corn Products Sales Co., New York, has appointed J. Cantey Alexander assistant manager of the Southern Mill Starch Division, according to an announcement by John R. White, southern manager. Mr. Alexander has been with the company for twelve years. His new duties will be to counsel and help all salesmen in the southern area, in addition to covering his regular South Carolina territory. **Corn Products Sales Co.,** has also established a branch office in the North Carolina Bank Building, Greensboro, N. C.

Monsanto Chemical Co., St. Louis, has announced that directors of the company and of **Swann Corp.,** control of which Monsanto acquired in 1933, have voted to recommend to their respective stockholders the merging of the Swann Corp. into Monsanto.

Worthington Pump & Machinery Corp. has appointed J. E. Holveck as special sales engineer, operating from its Pittsburgh office but extending his activities also to the territories of the Cleveland, Detroit, Chicago and Buffalo offices.

Read Machinery Co., Inc., York, Pa., has taken over the assets of **Read Machinery Co.** and the business, as reorganized, will continue in the manufacture of a line of mixers. Donald Loyhed has been appointed Cleveland representative.

TEXTILE WORLD'S

Cotton Digest

"THE argument that a mill must continue to accept business at ruinous market levels, which has so often prevailed in certain branches of our industry, and that hence it is useless for it to attempt to differentiate the costs of its various products, is an argument of despair rather than a policy of resolution."

These few words, contained in a recent address by Sydney P. Munroe, assistant to the president of the Cotton-Textile Institute, should be committed to memory by all textile manufacturers.

A buyer's market, instead of eliminating the need for cost determination, intensifies it. Without a reasonably accurate knowledge of all the cost distinctions as between different types, varieties or constructions of cloth and yarn, as Mr. Munroe points out, it is obviously impossible for a manufacturer to establish a price figure at which a specific sale will begin to show a profit, or to determine which of several sales opportunities will be most advantageous.

Just now, when the impact of new problems and new uncertainties upon the market is being felt constantly, is an excellent time to become cost-minded—and to make it a habit.—*Editor.*

AAA Firing Line

Cotton mill executives felt like throwing their hats in the air on July 16 when the United States Court of Appeals declared the AAA processing tax unconstitutional in the case of Hoosac Mills Corp. of Mass. Since October, this company had been challenging the right of the Government to collect processing and floor taxes amounting to approximately $82,000. Two reasons for the decision, which reversed the ruling of the District Court of Massachusetts, were cited as (1) the Federal Government has no authority to regulate production within control of State authorities, and (2) legislative powers have been delegated improperly to the Agricultural Adjustment Administration. Declaring AAA unconstitutional, the Circuit Court found it unnecessary to decide whether the processing tax is direct or excise.

At this writing, Senate and House conferees have just ironed out their differences regarding the innumerable amendments to the AAA bill. Among the more important provisions agreed to are: The appropriation of 30% of all tariff duties to AAA for stimulating foreign and domestic consumption of raw and manufactured agricultural products; extension of the Bankhead Act for one year; the right to sue for recovery of processing taxes providing the processor can prove the tax was not passed on to the consumer; and refunds to jobbers or merchants on floor stocks in case the tax is declared unconstitutional.

During all of this legislative maneuvering, confusion has reigned high. Many mills have filed suit to recover processing taxes already paid, some have been granted injunctions against collection of future taxes while others are still sitting tight and wondering what to do. Clarification of the situation is not expected until the amended bill becomes law and is tested in the courts.

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Processing Tax Agreement Reached

In a concerted effort to stimulate trade, over 150 cotton textile executives, representing 3,000,000 carded and combed yarn spindles, met Aug. 5 with President G. H. Dorr and other members of the Cotton-Textile Institute at Charlotte to adopt an agreement providing for refunds to buyers in event the processing tax is terminated or changed. This agreement, which will be attached to each contract of sale, follows:

"If and when, for any reason, sellers' liability for processing taxes levied under the AAA as heretofore and hereafter amended is increased, decreased, or terminated, or such taxes shall be invalidated by final decision of the United States Supreme Court, prices on any undelivered portion of this contract are subject to adjustment at a rate per pound computed on the basis of the conversion factors set up by Treasury Department decision 4433, approved May 10, 1934.

"In addition, the seller will credit on the purchaser's account the amount, computed on the basis of such conversion factors, of any such tax which, by reason of such invalidity, shall have been refunded to seller or seller shall have been relieved from paying, with respect to any delivered portion of this contract, invoiced within 90 days prior to such determination of invalidity: Provided, the buyer shall only be entitled to such credits with respect to such delivered portions, held as floor stocks, as to which direct refunds from the Government are not recoverable by the holders of such stocks."

Subsequently the same agreement was decided upon for goods transactions, with the time limit set at 30 days for retailers, 90 days for wholesalers, and 120 days for converters.

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Yarns Hold Firm

Despite the set-back afforded cotton yarn sales because of the processing tax uncertainty, market tone held its own through July. Yarn prices generally were firm, and there was little unloading by spinners at bargain levels. Most orders placed during the month were small, but these brought normal prices, according to reports. The chief buyers were knitters, with occasional business placed by wire manufacturers. As a whole July volume of yarn sales was above June but below July last year.

•

Goods Demand Slackens

July opened with a fairly good call for gray goods, but orders fell off noticeably toward the middle of the month. However, prices showed resistance to the buying lull and mills held pretty close to the market basis. Certain firms reported good spot call for sheets and pillow cases; indeed this branch of the cotton goods market was on the upturn at the end of July. Prices of certain lines advanced 5% and manufacturers reported they had no difficulty in getting the higher levels.

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Curtailment Still in Effect

Cotton textile mills generally are still operating on curtailed schedules. The Print Cloth Group and sheeting manufacturers have gone on record as being unwilling to increase operations in the face of present conditions. Observers anticipate considerable activity as soon as the AAA processing tax situation is clarified.

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Mickey Mouse in New Roles

Mickey Mouse is now starring in three new vehicles: "Sheets and Pillow Cases"—a bedtime story, and "Blankets"—an undercover plot, both by Nashua (N. H.) Mfg. Co., and "Towels, Washcloths and Bibs"—an exciting clean-up, by Martex Division, Wellington Sears Co., New York. These are all sold by Smith, Hogg & Co., Inc., which has been licensed by Walt Disney Enterprises to star Mickey Mouse in these articles. A pre-view was shown at the Smith, Hogg offices in New York Aug. 1.

June Operations

Statistics of particular interest to cotton manufacturers, showing June operations and the raw material situation, were:

Spindle activity	74.6% capacity, or 5,083,383,303 spindle hours
Cotton consumed	385,946 bales
Cotton exported	344,955 bales
Cotton imported	6,403 bales

May operations for comparison:

Spindle activity	83.4% capacity, or 6,095,334,830 spindle hours
Cotton consumed	469,250 bales
Cotton exported	278,977 bales
Cotton imported	10,423 bales

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Cotton Mill News

Alabama Corp, Gadsden, Ala., has been leased to C. M. Oppray & Sons, New York, and will be operated by Benjamin Kahn.

Erwin Mfg. Co., Huntsville, Ala., plans alterations and improvements in mill, including installation of new equipment. Work is estimated to cost about $60,000, and it is proposed to arrange financing through RFC.

Samoset Cotton Mills, Talladega, Ala., suffered damage by fire and water when cotton caught fire in the finishing pickers.

Wauregan-Quinebaug Mills, Inc., Wauregan, Conn., has transferred all weaving operations from its Quinebaug mills to the Wauregan plant. Practically all looms have been removed from the former plant and either installed at Wauregan or junked.

Strickland Cotton Mill, Remerton, Ga., is installing Saco-Lowell long-draft spinning and roving. Single-process picking and high-speed winders and warpers have already been installed.

Burton-Dixie Corp., Chicago, Ill., has awarded general contract to C. M. Guest & Son, Anderson, S. C., for extensions and improvements in former mill of **Blacksburg** (S. C.) **Spinning Co.,** recently acquired; boiler house will be modernized and new equipment installed, and improvements made in mill village. W. C. Burgess, 2024 South Racine Ave., Chicago, is company archtiect.

Standard-Coosa-Thatcher Co., Chattanooga, Tenn., has appointed Boswell & Davidson, Inc., Cohoes, N. Y., as sales representative in New York State to distribute combed and carded knitting yarns, Durene, sewing threads, etc. Elias Van O'Linda will be in charge of the New York territory.

Firestone Cotton Mills, Fall River, Mass., are arranging to close their local plant late in August for an indefinite period. Stock in process will be run out. About 850 employes will be released; they will be allowed two weeks' extra pay. The New Bedford, Mass., mill of the company will be continued in operation.

Butler Mill, New Bedford, Mass., operated by the Associated Textile Companies, now under the direction of James A. McDonough and William M. Butler, receivers, is planning modernization and improvements, including installation of new automatic looms, to replace present non-automatic equipment, new spindles and complete auxiliary equipment.

Whitley Cotton Mills, Clayton, N. C., which recently took over **Claytex Mills, Inc.,** of the same town, was scheduled to begin full operations.

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American Yarn & Processing Co., Mt. Holly, N. C., recently acquired the Mt. Holly plant of Catawba Spinning Co. This company is completing a program of revamping and modernizing its machinery and buildings.

Manville-Jenckes Corp., Manville, R. I., has sold its High Shoals, N. C., plant to Alfred Moore, president and treasurer of Jackson Mills, Welford and Iva, S. C., according to an announcement by A. M. Law & Co., Spartanburg, S. C., agents for the owner. The plant, operated by Manville-Jenckes Corp., for twelve years, includes in its property 37,000 spindles, 1,070 looms, 1,250 acres of land, 118 dwellings, water power site, etc. It is understood that several hundred thousand dollars were paid for the mill which becomes the third of the Jackson group.

Rosemary Mfg. Co., Roanoke Rapids, N. C., is making improvements in different mill departments, including the installation of a new slasher exhaust system and other equipment.

Cleveland Cloth Mill Co., Shelby, N. C., has awarded a contract for a two-story addition to A. A. Ramsey.

Dover Mill Co., Shelby, N. C., has installed a H. W. rayon conditioner.

American Spinning Co., Greenville S. C., sustained a fire loss recently, when the carding division was struck by lightning, setting fire to the equipment. The damage will be replaced.

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Cotton Industry Briefs

A Government loan of more than 10c. lb. "will ultimately prove detrimental to the producer as well as to the cotton trade in general," according to W. M. Garrard, general manager of the Staple Cotton Cooperative Association, Greenwood, Miss.

World cotton production for 1934-35 is estimated at 23,622,000 bales, this being 3,000,000 less than the 1933-34 crop, according to the Department of Agriculture.

Total distribution of American cotton will aggregate this season approximately 10,025,000 bales, exclusive of linters, according to the New York Cotton Exchange Service. This would be the smallest distribution in over 30 years.

The membership of Morris Abraham in New York Cotton Exchange was sold recently for $11,200. This price is $950 in advance of the previous sale.

A revision of official cotton grade standards has been proposed by the Bureau of Agricultural Economics with a view to making white grades more representative and eliminating grades for types of cotton which have become scarce.

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Cotton Financial Notes

Erwin Mfg. Co., Huntsville, Ala., has called meeting of its stockholders, Aug. 5, to consider application for a $60,000 loan from RFC for plant improvements.

Opelika (Ala.) **Mfg. Co.,** cotton yarn, was reoffered for sale July 15 and bids subsequently rejected by Judge O. P. Lee, referee in bankruptcy. The former $1,000,000 plant, including 92 acres of land and 100 mill houses, was sold on April 19, this year, to Alabama Oil & Guano Co., for $40,000. Court declined to approve this sale and ordered the trustee, John Allen Jones, to offer it again.

Puritan Novelty Yarn Mills, Inc., Bridgeport, Conn., has changed its corporate title to the Plymouth Novelty Yarn Mills, Inc.

Berryton (Ga.) **Mills** have arranged for increase in capital from $300,000 to $1,000,000.

Summerville (Ga.) **Cotton Mills** is in the hands of its bondholders through the formation of a holding company. The unsecured creditors have obtained appointment of a receiver to take charge of such assets as were not transferred to the Summerville Holding Co.

Hoosac Mills receivers report to the court at Boston that the business met a gross loss from Jan. 1 to May 4 of $244,086. The Butler and Nemasket divisions have been closed but the receivers believe they can operate the Hoosac and Newmasket divisions with an annual profit of $150,000 on gross business of $5,000,000.

Rockdale and **Sigourney Mills,** North Oxford, Mass., sold their cotton machinery at auction last month for $8,122.

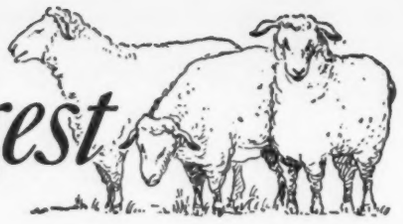
Manchaug Mills, Inc., Sutton, Mass., have been incorporated with capital of 1,500 shares of stock, no par value, to operate a local cotton mill. William L. Hayward is president, and Winfield A. Schuster, East Douglas, Mass., treasurer and representative.

Sea Island Thread Co., New York, in 77B proceedings offers 40% payment to creditors. This is understood to be acceptable to creditors.

Arnold Print Works, Adams and No. Adams, Mass., have offered a plan for change in financial structure which is meeting with approval among stockholders. It is understood most of the 18,000 proxies needed to make the plan effective are in hand. The project provides among other things that the authorized amount of common stock be increased to 200,000 shares and that participating preferred stock outstanding (par value $50 per share) shall turn in this stock in exchange for one share of new Class A preferred stock (par value $30 per share callable at $31.50) with priority as to dividends and assets over the present participating preferred stock; and two shares of common stock.

TEXTILE WORLD'S

Wool Digest



THE "leadership" of the United Textile Workers of America continues true to form. In its demands on woolen and worsted mills, it was guilty of three dumb acts, all of which were promptly and convincingly exposed by Arthur Besse, president of the National Association of Wool Manufacturers.

First, its demands, if granted, would amount to a general average increase of 40 to 50%. Second, the union insisted upon standard assignments, despite the fact that a board, on which it was represented, recently reported that a standard work load for the industry was thoroughly impractical. On these two points, Mr. Besse says: "An honest effort to find some way of achieving a degree of equalization of wages as between different mills would have much to commend it and if these proposals had been in any sense reasonable or had been based on a realistic sense of existing conditions, they would have merited careful consideration. However, the present proposals are so fantastic that the mills which have received them would seem to have no alternative except to reject them flatly."

Third, one of the union's officials announced that "60% of the woolen and worsted mills over the country have agreed to grant most of the demands made by the union." This, stated Mr. Besse, was a "patent untruth"; in fact, he pointed out, less than 60% of the mills had even received the demands at the time the statement was made.

Shades of last September! Memories of the irresponsible union statements which cluttered up the front pages of newspapers then! What's the use?—*Editor.*

Tropicals Offered at Small Advance

Prominent selling houses opened tropicals for the 1936 season around Aug. 1. In general there were advances of 10 to 12½c. per yard on goods less than $2.00 per yard. On some of the higher priced numbers advances ranged up to 25c.

The houses which opened include American Woolen Co., William Whitman Co., Faulkner & Colony Co. and Herbert R. Leeds & Co.

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Strike Ends at Uxbridge Worsted

The return of the operatives to the plants of the Uxbridge Worsted Co. on Aug. 6 marked a break in the uncertain woolen and worsted labor situation. More than 3,000 of the workers in the seven mills of the company went on strike June 24. The U.T.W. demanded that wages be adjusted, that the work load be cut, and that the third shift be eliminated. Uxbridge has been among the higher-wage mills and the work assignments have been planned scientifically. Further, it is one thing for a union to demand legislation forcing *all* mills to limit operation to two shifts, but—quite outside of the pros and cons of the three-shift question—it is something else again to ask the workers of an individual plant to fight for something that will mean that one-third of the workers themselves will be out of jobs. Such a strike can be kept going for some time through intimidation and such means, but when it became evident that the workers were restless and wanted to return the U.T.W. moved quickly to a "compromise" and the mills made plans to reopen.

As far as the industry in general is concerned, the U.T.W. is not in an enviable position, for the following reasons:

1. The U.T.W. is not at all strong among the big mills in the Lawrence area, as witness the fact that these mills ran right through the general strike last September. The union has the tough choice of trying to organize these mills or of trying to carry out its plans without the support of a considerable number or workers. Another point is that in Woonsocket the Independent Textile Workers union is prominent. The I.T.W. is in the position of being able to cash in on any victories the U.T.W. might win, and it is doubtful that its leaders would be unwise enough to enter the battle actively.

2. While the industry does not view with particular horror the working out of a common-sense set of minimum wages for the skilled classifications, the U.T.W. has gone far beyond this in asking for what are regarded as excessive wage increases and standardization of work assignments, and has thus alienated a number of manufacturers who might have been sympathetic to reasonable minimum wages.

3. There is a lot more talk about the South and this does not take the form of blustering remarks about moving. Such questions as "If we increase wages where will we be against southern competition?" and "Do you really think that we'll have to move south?" are being seriously asked. So far the union has shown no inclination to take this factor into consideration in making demands, but it is a factor and it is another obstacle in the path of the U.T.W.

Apparently there are two possibilities. The union will accept a few gains here and there and retire as gracefully as possible from an active fight, or the union—having talked big—will, in desperation, start fireworks with an attempted widespread strike. The first seems more probable.

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Wool Stocks Decline

Wool stocks in hands of dealers and mills as of June 29, 1935, show declines from figures of a year previous according to the quarterly wool stock report issued July 18 by the Bureau of the Census. Total stocks of apparel wools were down 20% and of tops 30%.

Raw Wool, Top, and Noil Stocks Held by Dealers, Topmakers, and Manufacturers (1)

(In thousands of pounds; raw wool on scoured basis.)

Stocks	June 29, 1935	March 30, 1935	June 30, 1934
Apparel Class (2)			
Raw wool total	141,923	134,455	176,292
Dealers'	85,500	83,287	118,329
Mfrs.' and topmkrs.'	56,423	51,168	57,963
Top total	20,675	19,197	31,878
Dealers'	786	812	987
Topmakers'	3,444	3,574	7,775
Manufacturers'.	16,420	14,786	22,586
Top exchange	25	25	530
Noil total	9,833	10,175	14,913
Carpet Class (3)			
Total, inc. tops and noils	30,560	28,957	Not Available Scoured Basis.
Dealers'	2,829	5,524	
Manufacturers'.	27,731	23,433	

(1) June, 1935, statistics believed to include over 96% of the total raw wool, top and noil stocks held by all dealers, topmakers, and manufacturers; March, 97%; June, 1934, 96%.

(2) Wools generally regarded as more or less suitable for apparel purposes.

(3) Foreign wools such as Donskoi, Smyrna, East Indian, Chinese, etc., particularly suitable for floor coverings.

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Tops, Slack and Easier

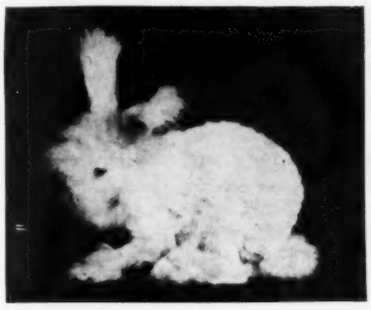
Wool tops were relatively steady through July though the market was quiet. Futures were down about 1c. over the month while spots lost a shade more. The top exchange standard spots opened the month at 89½c, went to 90c. on July 5, which was held until July 19, when revision to 88c. was made. Current inactivity is seasonal and the market is optimistic of revival next month.

•

Rabbit Wool Gains on Pacific Coast

A new series of events on the Pacific Coast are turning renewed attention to angora rabbit wool. A central marketing agency for growers, operating under the agricultural act for non-profit cooperatives, has been set up and through it larger and more regular lots are becoming available. This is the Caltifornia Angora Wool Growers, Inc., of Los Angeles, and it is supplying one Pacific Coast knitter alone with 1000 lb. weekly. The organization

Angora rabbit before clipping



Angora rabbit after clipping

has arrnaged for the spinning of the rabbit hair with 64s grade Australian lambs wool and offers knitting yarn in such sizes as 18s, 18s-2, 20s-2, 26s-2, etc.

A series of grades have been established for angora. No. 1 wool consists of a super and a regular. The super No. 1 is wool of 3 in. or over staple, which is chiefly used for hand spinning or very fancy manufacturing purposes. The regular No. 1 is any staple 2-in. and over, clean and unmatted. No. 2 is from 1 to 2 in. No. 3 is all short wool, less than 1 in. No. 4 is clean matted wool. No. 5 is the dirty mats.

The illustrations show a typical angora rabbit before and after clipping. The pictures were supplied by the California Angora Wool Growers, Inc., which is cooperating in an educational campaign to promote use of rabbit wool.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40-hour shift, 5½ days per week. May consumption four weeks and June five.

Wool consumed:	May	June
Total clean equiv. (excluding carpet)	25,444,000	26,585,000
Carpet wool (grease)	10,606,000	10,245,000
Looms (50" wider)	95.2%	97.3%
Carpet looms	74.1%	62.9%
Combs	143.9%	142.3%
Worsted spindles	88.2%	89.7%
Woolen spindles	106.2%	114.3%

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Senate to Probe Wool Market

Senator Adams of Colorado has been appointed chairman of a Senatorial committee of five to investigate the activity of wool dealers under a resolution appropriating $10,000 for this purpose. The allegation that a broker sells consigned wool on a falling market and his own on a rising market, has brought up the possibility of legislation to curb such opportunity. The other committee members are Senators Hatch (New Mexico), Murray (Montana), Steiner (Oregon), and Carey (Wyoming). The industry finds it hard to see what is wrong with the practice alleged since selling promptly in a falling market prevents possibly greater losses, and so protects the consignor. Selling on a rising market is merely liquidation, since longer holding suggests greater profits.

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Woolen Rags Quiet

Woolen rags have experienced another inactive month and as a result eased somewhat in price. Users are reported to be cautious because of labor unrest, but July is normally a between-seasons month at best. White knit stock has been available at 31c. and softs at 29c. Light hoods are down to 21c. Government contracts for overcoatings which allow 35% reworked fiber were looked to by many graders but the contracts are smaller than first believed. Mixed khaki has sold at 12½c. and new khaki clips are relatively scarce.

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Wool Industry Briefs

Woolen & Worsted Yarn Credit Group held its annual outing at Briarcliff (N. Y.) Lodge on July 27. Donald O'Brien of Aronson & Oresman was awarded first prize in the golf tournament with a low gross of 71. The non-golfers played baseball and pitched horseshoes.

President Roosevelt appeared at a press conference during the hot weather of mid-July in a light suit which was made of Texas mohair. The President stated he got it on the recommendation of Vice-President Garner who is in position to know all about the products of the State of Texas.

Blankets for CCC on which bids were opened July 3 may not be ordered by the Government, it is said, because prices were deemed too high. It is understood that the Government was prepared to pay $4.75 but that prices bid averaged around $5,50, although there was one bidder at $4.39.

Peerless Woolen Mills, Rossville, Ga., has re-established its custom of paying a bonus to employees, which custom had been suspended during the depression. Last month nearly $30,000 was so distributed.

E. S. Freneau & Co. are now representing the women's wear line and summer suitings of John Culbertson & Sons.

Prenson Woolen Co., 239 Fourth Ave., New York, has been formed by Harry Loebenson and David Prensky. The former was lately with the American Woolen Co.

Eugene Messner, Inc., has designed a novelty suiting of spun rayon and mohair.

Mohair Pile Fabrics CS52-35 is the title of a commercial standard for 100% mohair plain velvet, 100% mohair plain frieze and 50% mohair plain frieze which became effective for labelling such goods on July 8 according to the Division of Trade Standards of the Bureau of Standards, Washington.

Barre (Mass.) **Wool Combing Co.** has been awarded a jury verdict of $189,304 against the State of Massachusetts for alleged loss of water power and deprivation of flowage for carrying away waste as a result of the Ware-Swift River Boston water supply development. The mill plans another trial in the superior court at Worcester on the ground that damages awarded are inadequate.

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Wool Mill News

Talcott Bros. Co., Talcottville, Conn., suffered loss of about $1,000 July 19 when fire swept the picker room of the plant. The blaze was attributed to spontaneous combustion.

Bridgton-Pondicherry Woolen Mills, Inc., Bridgton, Me., operating in local mill leased from the Forest-Pondicherry Co., are planning improvements in equipment, including installation of considerable new machinery in accordance with terms of the lease. About $17,000 will be expended. Charles E. Gleason is president.

Michigan Felt Co., Grand Rapids, Mich., plans early rebuilding of portion of mill, recently damaged by fire. Loss estimated close to $25,000, with equipment.

North Billerica (Mass.) **Co.** has resumed operations at local Faulkner Mills, following shut-down for three years. Employment is being given to about 100 persons and this will later be stepped up to 130.

Lebanon (N. H.) **Woolen Mills Corp.** has begun construction of new one-story addition, 40x50 ft., to provide for installation of additional looms and other equipment. Unit is reported to cost $35,000.

Paragon Worsted Co., Providence, R. I., is building a three-story addition, 48 by 115 ft. In the item last month referring to this improvement the dimensions of the building were given incorrectly.

Bonin Spinning Co, Woonsocket, R. I., has filed plans for a 1-story brick storage unit 50x80 ft. on Mendon Road, and will start work at once.

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TEXTILE WORLD'S

Rayon Digest

THE public mind is much confused over the status of the staple fiber development in Europe. And we don't wonder!

A series of press dispatches, reaching this country at frequent intervals during recent months, would indicate that at least every morning before breakfast a scientist over there "discovers" a revolutionary new fiber. Not only do all the natural fibers appear to be threatened by synthetics, but startlingly novel ones would seem to have been created.

This much should be understood: The technical development of staple fibers abroad is not revolutionary, in so far as this present period of time is concerned. It is merely an extension of the successful effort on the part of technicians to adapt the properties of synthetic fibers to specific needs. Consequently it is a continuation of the "revolution" which started back in 1920. The fibers being announced today are variants on the rayon theme.

Confusion also exists as to the reason for the recent staple fiber growth abroad. It is not generally recognized that the main cause has been economic, particularly in Germany and Italy: an attempt to meet a scarcity of raw material developing from national and international complications too well known to detail here. The United States, with its surplus of cotton, has not had the same impulse to explore those fields. Naturally, of course, we are getting a repercussion from events abroad—and probably an expansion here is due. But that's another story.

So, in discussing the staple fiber impetus in Europe, we should remember that, first, it is not revolutionary; and, second, that it is mainly due to a chain of economic and political circumstances.—*Editor.*

Senate Defeats Rayon Tax Plan

With the Senate's defeat July 20, by a 62-15 vote, of the proposal to place processing taxes on both rayon and silk via amendments to the Agricultural Adjustment Act rayon producers were able to breathe freely, satisfied that they had scored an important victory. Senator Harry F. Byrd, of Virginia, who with Senator Glass led the opposition to the tax, expressed gratification at the Senate's action.

Developments in the rayon processing tax issue came rapidly during July. Early in the month a group of producers led by Samuel A. Salvage, president of the Viscose Co., interviewed Senator Byrd and explained that the tax might increase unemployment in the Senator's home state, by impairing business and forcing plants to close. It was pointed out also that a tax on rayon would give Japanese silk an advantage. The first outcome of the protest was a proposal to impose a processing tax on silk also, which brought Peter Van Horn and a delegation from the National Federation of Textiles to Washington in strong opposition. After being pigeonholed for a few days, the issue was brought up again on the Senate floor July 20, and that proved the occasion for a crushing defeat of the whole silk-rayon tax proposal. Observers agreed that the defeat of the tax was due largely to the prompt campaign of protest instituted by the rayon industry.

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July Banner Month in Yarn Sales

Rayon yarn sales picked up decisively during July and it was clear even before the month ended that the total would put July second to last January on volume; January was a red-letter month. While processing tax uncertainty acted as a brake on movement in early July, the actual effect was slight, and once the tax issue eased, orders accelerated rapidly. One of the chief producing firms has had a progressive rise in volume each month since April.

An upturn in viscose yarn prices was started on Aug. 7 by the Viscose Co., with a 2c. advance bringing 150-40 denier up to 57c. per lb. Orders for August shipment came in steadily, but producers hesitated to estimate as to how this month might shape up in the year's schedule. Demand for acetate yarn was especially active in recent weeks, and stocks on hand were unusually low.

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Linings Unsettled

Reports on conditions in the rayon lining market during the current month were contradictory; a considerable part of the trade complained of price weakness and "dumping" and charged that competitors were giving absurd concessions to get orders; while a smaller group of firms contended that they were still selling at healthy levels. Converters have been especially loud in their complaints, asserting that the 112x68 twill and other fabrics in this field have been selling at prices which make it impossible for them to operate.

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Tubize Licenses 3

The privilege of operating under the Singmaster patents has been extended to three more important yarn firms it was announced last month by the Tubize Chatillon Corp. through John E. Bassill, president. The new licensees are: Tennessee Eastman Corp., Skenandoa Rayon Corp. and Hartford Rayon Co. Previously Tubize had granted Singmaster rights to Industrial Rayon Corp., du Pont Rayon Co., North American Rayon Corp., American Enka Corp., American Bemberg Corp. and Delaware Rayon Co. The Singmaster patents cover the production of pigmented rayon yarn.

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Weavers Seek Fabric Standards

Plans to develop standards of construction for woven rayon fabrics were started in late July when several meetings were held in New York between representatives of the National Rayon Weavers Association and the Greyco group. It is recognized that many difficulties arise due to lack of common understanding between producers and weavers as to which yarns are best suited to specified constructions. Therefore the joint Greyco and association group is holding consultations with rayon producers to work out standards which will serve as a guide. The fundamental aim is to prevent repetition of the faulty fabrics which proved a costly blunder last spring.

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Britain's Staple Waste Increase

Popularity of acetate among the synthetics in Great Britain shows signs of slackening, according to TEXTILE WORLD's London correspondent. Figures for the first five months of 1935 show that acetate's percentage of the total rayon output in the United Kingdom was 15.7% against 19.2% in the same period of 1934. However, acetate's production rose from 7,465,000 lb. in Jan.-May 1934, to 8,050,000 lb. in Jan.-May, 1935. Viscose yarn output suffered a frac-

tional loss, declining from 74.5% in 1934 to 74.0% in 1935. The chief gains were in viscose staple fiber and viscose waste. Together these totaled 1,625,000 lb. in 1934 while in the same period of 1935 the separate figures stood: staple, 2,585,000 and waste 1,830,000 lb.

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Industrial Strike Ends

The ten weeks' strike at Industrial Rayon Corp. plant, Cleveland, which threatened last month to precipitate a city-wide walk-out of all industry, came to an end July 31, when representatives of both the Cleveland Federation of Labor and the rayon company signed an agreement. The accord, which was subject to ratification by members of the Rayon Local 2096, provided for: preference to veteran workers, to those having dependents and to more efficient workers in layoffs; extension of sick and other benefits to union and non-union workers; recognition of union; rehiring of strikers without prejudice.

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Bassett Promoted

Two sales executive changes of importance were announced this month. Chester C. Bassett, fourteen years in the rayon industry and for five years with the American Bemberg Corp. has been appointed assistant sales manager of that firm. Mr. Bassett formerly was nine years with the Viscose Co., and for three years was president of the Rayon Institute of America. Announcing that W. T. Dodge, Acele representative in the south, had been transferred to New York, the du Pont Rayon Corp. also made known that James J. Cook, manufacturing superintendent of the firm's Old Hickory, Tenn., plant would succeed Mr. Dodge.

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Foreign Flashes

Cheerio! It's "rayon"! — The term "artificial silk" has been officially disapproved by the Retail Trading Standards Association, new British organization devoted to improving methods of identifying merchandise. The association, London dispatches state, has formally recommended general use of the term "rayon," to the British manufacturing and retailing fraternity.

Russia's Exports Grow—Exports of rayon by the Soviet Union are growing steadily, and markets are expanding at a fair rate. The first important buyer of Russin rayon was Africa, and now substantial orders for synthetic yarn are being received from Java and Madeira.

Esthonia Goes Rayon—Plans are being developed in Esthonia for the establishing of a rayon industry in that country. The local government is behind the project.

Turkey Builds Rayon Plant—The first rayon producing plant to be built in Turkey is now under construction at Gemlik, on Mamora Sea. The Chemnitz firm of Oscar Kohorn & Co. is equipping the plant and also supplying the technical personnel.

Will the Men Wear It?—That is the fundamental question now being asked in London regarding the tropical weight men's suiting, 95% fibro, 5% alpaca, which has just been developed by Courtaulds, Ltd. Courtaulds are not optimistic on its immediate commercial possibilities as they have had many set-backs in this field; but they are waiting to see what it looks like in actual wear.

Promotion de luxe—The progress of the rayon industry in Italy is told in an elaborate volume, bound in rayon cloth which has just been issued by the Snia Viscosa, of Milan.

The opening of special rayon piece goods sections devoted solely to sale of Crown brand fabrics is proving helpful both in swelling store sales, and in increasing prestige for Crown yarns, it is announced by the Viscose Co.

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Industry Briefs

Protest Rail Rates—Complaint by Industrial Rayon Corp. against rail rates on sulphuric acid between Pulaski and Covington, Va., were heard last month before the Virginia State Corporation Commission; the matter was taken under advisement.

Many See Talkie — Large groups of retail buyers and other store executives have seen "Rayon" the new sound film produced by the North American Rayon Corp., which depicts the development of rayon from the chopping of trees to yarn manufacture at the firm's plants. More than 900 persons saw the film at one showing in the Hotel Pennsylvania, New York, last month.

Arrives for Hopewell Dismantling — With the arrival recently from Sao Paulo, Brazil, of Dr. O. Torres, representing the new firm, Companhia Nitro Chimica Brasileira which has bought the equipment of the Tubize Chatillon Corp. at its Hopewell, Va., nitro plant, plans were completed for the dismantling task. The machinery was assessed this year at $700,000.

Wanted: A New Put-up—Rayon producers could add a nice little volume to their yarn business from small silk weavers by changing the put-up of some of their yarn, according to one observant mill man. This manufacturer pointed out that small mills, set up to weave silks find that skeins and cones which is the present rayon put-up, are not practicable for their use. If quantities of rayon for such mills were put up in cops or spools, it would stimulate their interest in synthetic yarn, he argued.

Canadian Celanese, Ltd., Drummondsville, Que., Canada, has just added an H.W. rayon conditioner, purchased from Industrial Dryer Corp. of Stamford, Conn.

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Rayon Mill News

H. K. Regar & Sons, Inc., Anniston, Ala., mill, idle for some time past, is being taken over by a company, name temporarily withheld, now in negotiation with the Anniston National Bank, trustee for the property, and will be converted for a new plant for the manufacture of silk and rayon ribbons and allied specialties.

Burlington Mills Co., Greensboro, N. C., has moved 250 looms to a new crepe plant recently acquired at Covington, Va.

The Viscose Co. of America has awarded a contract to the Ward & Inch Co., Philadelphia, for construction of several extensions to its large plant in Meadville, Pa. H. H. Bitler, plant manager, said the additions are to be ready for occupancy this fall and will permit addition of more than 1,000 workers to the payroll.

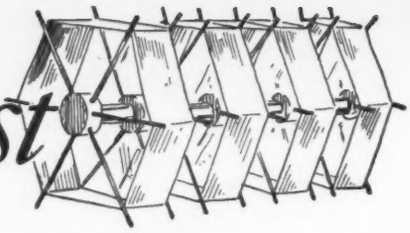
Rayon Industries Corp., which figured in a reconveyancing agreement made by the First Continental Corp. and the Beldray Industries, Inc., and the Beldray Throwsters, Inc., operators of the plant property in Belding, Mich., are named as codefendants in suit for foreclosure filed by Belding Heminway Co., former owner of the property, alleging principal and interest on three mortgages are delinquent. Alfred H. Gawthrop, of Wilmington, Del., and Ernest C. Wilson, of Norfolk, Va., as temporary trustees of Beldray Industries, Inc., Belding, Mich.; Beldray Throwsters, Inc., Belding, Mich.; College Weavers, Inc., Northampton, Mass.; College Throwsters of Haydenville, Inc., Haydenville, Mass.; S. Levin & Co., New York City, and Norfolk Weavers, Inc., Norfolk, Va., under 77B proceedings to reorganize, have filed a petition in U. S. District Court here for permission to issue a certificate of indebtedness to Equitable Trust Co., of this city, for a loan of $20,000.

Emporia (Va.) **Textile Mills, Inc.,** have been incorporated with maximum capital of $50,000. J. T. Harris, of Emporia, is president.

DuPont Rayon Co.'s new $5,000,000 addition at Ampthill, Va., is operating at 50% capacity. Any increased operations in the addition are dependent upon business conditions. The new addition already has given employment to about 500 persons. There are about 2,500 persons employed in the entire plant. The city of Richmond and the county of Chesterfield are seeking a PWA loan of $450,000 to construct a sewer which would relieve the water that is now being used by DuPont Rayon Co. of contamination.

TEXTILE WORLD'S

Silk Digest



THESE are not typical "dog days" in the silk industry. Quite aside from volume of business passing—or not passing—there is an undercurrent of movement.

As we write this, raw silk has advanced 13 to 15c. since July 1, and the market tone is very firm for this period of the year. The Silk Parade is on its way: due here in mid-September. Styling of new fabrics is very original and has taken an odd turn: there is an effort to make the newest lines look like everything except silk. There is even talk of reviving the old Silk Association name: this is good or bad, depending on one's point of view, but at least it's action.

Altogether, there is a significant vitality pulsing through this branch of the industry. It may be a good omen for the coming season.—*Editor.*

Silk Jumps 13c In "Dull" July

Increased confidence among broadsilk manufacturers and a spirited demand for raw silk combined to advance primary market prices about 13c between July 1 and July 23; end-July indications were that the gains would hold at least until the middle of the current month. The silk market's key number, Crack Double Extra 13/15 white 78% sold at $1.42 at the opening of the month and three weeks later it was quoted at $1.55. The rise also was attributed partly to a spurt of speculative buying. Importers sold heavily for September and October delivery and were not covered. Finally they had to cover in a hurry and the pressure on Japan proved so strong that spot stocks shrank to nominal size. At the opening of this month importers were hopeful the market might hold at current levels.

The improvement in broadsilk tone, which in turn was due to a rise in fabric prices, naturally had healthy repercussions in the primary market and aided in holding raw silk prices at the higher levels.

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Silk Industry Split on Code Agreements

The marshalling of trade opinion in the silk industry to support new operating agreements based on the NRA code continued through July, and moderate progress had been made at the start of the current month. Responses from mills showed that there are fair prospects for enactment of agreements in the more closely knit groups; as previously noted the ribbon group already has approved an agreement. Similar action by the tie fabric group is looked for, but any early approval of an agreement by the broadsilk manufacturers is unlikely.

In discussing the broadsilk situation, trade leaders emphasized that these weavers generally are obeying the principle NRA articles of faith as evident in the fact that few violations have been reported. The sentiment among broadsilk weavers at present is that, while they favor the code rules they prefer to remain free.

Market conversation took a significant turn during July when various important factors privately expressed the thought that the National Federation of Textiles, Inc., should be dissolved and its predecessor the Silk Association of America, Inc. reinstated. The main arguments to this end were that the NRA nullification had emasculated the Federation, and that the word "silk" carried so great a prestige value as to warrant it being again placed at the masthead of the industry. Observers pointed out that such was perfectly possible, as the Silk Association of America, Inc., was still technically alive, the name rights being in possession of the Federation; thus, a change back to the old name, so far as corporate action is concerned, would be simple.

The prestige value of the word "silk" appears to be gaining rather than diminishing; many rayon houses persist in holding to their original "silk" names.

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Throwsters Ratify Pact

The four-month agreement by which the commission throwing industry retains the major NRA provisions went into effect late last month, it was announced by the Throwsters Research Institute. The agreement was submitted to the industry and was approved by more than 80% of the spindles. All returns were not yet in and the final approval was expected to total a much higher percentage. The agreement assures maintenance of the minimum wages and the 40-hour work week until Nov. 1 in that industry.

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Canada Fears Surplus

Economic conditions in Canada continue to improve, and the Canadian silk industry is sharing that improvement, W. P. MacDougall, vice-president and managing-director of Belding-Corticelli, Ltd., stated July 12, in his address as president of the Silk Association of Canada, at that organization's tenth annual meeting in Montreal. He warned strongly against further expansion of the industry, however, stating that purchase of new equipment constituted a threat because current equipment was fully adequate to meet all reasonable prospects as regards demand.

•

Silk Tax Plan Meets Early Death

During the first part of July, the proposal to put a processing tax on rayon was merely a matter of impersonal interest to the silk industry. However, the issue assumed very personal significance July 13 when the plan was expanded to include a silk tax also. Silk industry leaders resented the request made by rayon industry leaders for a silk tax; they argued this was wrong strategy and that the rayon leaders instead should have concentrated on opposing the rayon tax which the silk leaders conceded was itself unfair.

Spirited opposition to the silk tax crystallized quickly and a delegation led by Peter Van Horn, president of the National Federation of Textiles went to Washington, where it presented a vigorous protest before Senate leaders. July 20 brought the welcome news that the whole silk-rayon tax project had been rejected by a 62-15 vote of the Senate, and this was credited in no small part to the opposition expressed by the silk industry.

•

Fabric Prices Firm Despite Light Sales

While demand for broadsilk was still more or less on a sampling basis during July, price tone stiffened perceptibly and fabric manufacturers look for a healthy market situation to prevail throughout the current month. The season has been slow in starting; at the end of July, satins, which should be active about that time, were still sluggish. However, this backwardness was viewed by the trade as only superficial and due in part at least to the torrid weather. They insisted conditions

All-silk evening dress of pink lace which is a Paris original and a highlight feature of the International Silk Guild's traveling fashion show.

were very sound, as evident in the strong price tone. The price advance started among rayon fabrics and communicated itself then to the silks.

Buyer interest in silks centered on novelties, especially those remarkable new constructions in which silk simulates the appearance of cotton as in the silk seersuckers, and the appearance of wool, as in the heavier rough-faced numbers. Indications were that satins might show activity late this month.

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Boom, Boom, Parade's Comin'

Plans for the second annual Silk Parade which will be held during the week beginning Sept. 23, under auspices of the International Silk Guild were progressing rapidly this month. The event will agan focus consumer interest on all types of silk merchandise and on the advantages of silk as a textile fiber. It is expected that 5,000 stores in the United States, as well as those in foreign countries will participate. Most of the chief features of the 1934 event, including style shows, service and sales aids for stores will be included plus numerous new innovations which are not ready yet to be made public.

The Guild announced Aug. 6 that the 1935 Parade Poster has been selected. The poster depicts silk's progress through the ages; four heads typify the four key periods; earliest China, Greece, the Renaissance and today, the last being represented by a modern girl. The poster is stated to be especially well adapted to display purposes in stores, and work has started on preparation of such material which will be available shortly.

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Wool-like Silks Are Fall Highlight

Silks so heavy that they resemble upholstery satins will be important in the 1935-1936 formal apparel season, according to a fall forecast released by the International Silk Guild. Wool-like surfaces are also a leading feature of the new silks, and a wide range of constructions which have the hand of wool, but are 100% silk are included in the latest showings. Other features of the silk season are the stress on silk matelasses, the trend away from black for formal wear, and the increasing interest in erect-pile velvets.

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Plan Velvet Show

Fashion interest in velvets, already strong, has been accentuated by the announcement that a velvet style show will be held Oct. 25 at the Waldorf-Astoria Hotel, New York, for the benefit of the New York Infirmary for Women and Children. The show will include models specially designed in velvet by leading American and French couturiers; the Uptown Retail Guild of New York will present newest street, evening and afternoon gowns in velvet. The show is to be part of a Velvet Ball and Debutante Cotillion sponsored by a group of society women headed by Mrs. Frank A. Vanderlip.

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Industry Briefs

Opposes Tariff Cut—On behalf of the Paterson, N. J., silk industry, the Chamber of Commerce of that city added its voice to that of the National Federation of Textiles, Inc., in opposing any reduction in the import rates on French silk and rayon fabrics. Following resolutions adopted at Paterson a delegation went to Washington and presented formal protest against any such change in the Reciprocal Tariff Act.

Cheney Consolidates Divisions—In order to consolidate their fabric and upholstery divisions under one roof, Cheney Bros. have taken an additional floor at 509 Madison ave., New York.

John Black Has New Job—Among various selling staff changes announced by Schwarzenbach Huber Co., is the appointment of John Black, formerly with Maxwell Textile Co. to represent the firm to the cutting-up trade in Boston, Philadelphia and Cleveland. Mr. Black had been some years with Schwarzenbach before going to Maxwell.

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Silk Mill News

Domestic Silks, Inc., Hattiesburg, Miss., began the installation of looms in its new plant at Edwards Street and Tuscan Avenue early in July. The building, which was erected by publicly subscribed funds, was recently completed.

Commercial Silk Co., Inc., Paterson, N. J., and Altoona, Pa., has leased the Stutz-Hadfield Silk Mill, Clinton, S. C., which has been closed for some time. The plant is being cleaned up and machinery repaired. About 70 looms and auxiliary equipment are being added which will double the present capacity and give employment to 120 people.

Woven Products Corp., Paterson, N. J., recently organized with capital of $10,000 and 1,000 shares of stock, no par value, plans operation of a local silk mill. New company is represented by Saul M. Mann, 125 Ellison St., Paterson.

Punxsutawney (Pa.) **Throwing Co.** has installed a H. W. conditioner for setting twist on silk.

Quaker Silk Co., Richmond, Va., recently organized, care of F. R. Van Norden, secretary, Chamber of Commerce, Petersburg, Va., is concluding arrangements for establishment of a new broad silk mill at last noted place, where site is being secured. Initial plant will include a total of about 80 looms and accessory equipment, and will have facilities for employment of about 100 persons. The Century Ribbon Mills, Inc., New York, are said to be interested in project.

Susquehanna Silk Mills, Inc., has closed its Sunbury, Pa., plant indefinitely because of the high cost of water service and other economic reasons. It is said that the plant may be abandoned and the equipment transferred to the Belvidere, N. J., plant.

Frank Ix & Sons, Inc., Charlottesville, Va., have let general contract to the Barnes Lumber Co., Charlottesville, for new one-story addition, and will begin superstructure at once. Cost about $45,000 with equipment. Elmer E. Burrus, Charlottesville, is architect.

Quaker Silk Co., Inc., of Allentown, Pa., is transferring its 80-loom silk mill employing 100 persons to Petersburg, Va., and the first load of machinery has been shipped to the Virginia city. Installation and alterations involve a $3,800 outlay.

Grabur Silk Mills, Inc., formerly Joseph R. Morton & Co., has opened at Burlington, N. C., and E. I. Bendigo, formerly with Mock-Judson Voehringer, Inc., is superintendent.

Century Throwing Co., Hudson, Pa., machinery and equipment is being liquidated by Peter Smith, Clifton, N. J. Three-story brick building, slow burning mill construction, with 34,960 sq.ft. of automatic sprinklers, elevator, and power plant of 250 hp. with two boilers are included in sale.

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Silk Financial Notes

H. R. Mallinson & Co. preferred and common stocks have been withdrawn from trading on the New York Stock Exchange. Holt, Rose & Troster, brokers, will make an over-the-counter market for these issues.

Grant Silk Mfg. Co., Inc., Paterson, N. J.—William F. Hinchliffe, Paterson, has been appointed receiver for this company by the Court of Chancery. Company is stated to have assets approximating $30,000 and liabilities totaling $85,000.

Secaucus Silk Mfg. Co., Inc., Paterson, N. J.—Louis Epstein has been appointed receiver for this company by the Court of Chancery.

Grant Silk Mfg. Co., Paterson, N. J., was placed in hands of W. F. Hinchliffe as receiver on July 16. The company took an appeal from the appointment.

Century Ribbon Mills, Inc., report for first 6 months of 1935 net profit of $28,913 comparing wtih $108,200 net profit for first half of 1934.

Elegant Silk Co., Inc., Paterson, N. J., has ordered under State laws with capital of $100,000, to manufacture broad silks. New company will take over and succeed to the organization of same name, with local mill at 80 George St., operated by Elias and Zahy Hayek, who will be officials of new corporation.

TEXTILE WORLD'S

Knit Goods Digest

THE failure of most branches of the hosiery industry to give the required percentage support to agreements which would have continued code provisions in force, does not mean that the industry is opposed to the basic NRA psychology of wage and hour regulation. On the contrary, it is safe to say hosiery manufacturers are overwhelmingly for that principle.

But signing on the dotted line is something else again. This reluctance is not peculiar to the hosiery division; we have encountered it in the other branches. There are several contributing factors, the most important one apparently being fear of the consequences in so far as relations with organized labor are concerned. Unpleasant memories project themselves.

Opponents of the NRA idea should not gloat prematurely. —*Editor.*

Hosiery Mills Turn Losses Into Profits

Confirmation of the optimism which has become increasingly evident in the hosiery industry of late, is found in current financial showings of leading firms. These concerns manifest a definite swing to the black side of the ledger. In a statement issued at the end of July Gotham Silk Hosiery Co., Inc., and subsidiaries report for the half-year ended June 30, 1935, consolidated net income of $92,774 after charges, which compares with a consolidated net loss of $203,091 after charges for the same period last year.

Another leading firm, Real Silk Hosiery Mills, in a preliminary estimate of its first six months, expects a profit of $110,000 against a loss of nearly $500,000 in the first half of last year. It is understood that forthcoming reports of Van Raalte Co., Julius Kayser & Co., and other firms will also reflect the improvement.

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Hosiery, Outerwear Cool to Pact Idea

Two important developments in the knit goods branches at the opening of August pointed toward a weakening of support for the proposed operating agreements. The National Knitted Outerwear Association announced Aug. 1 that due to slow responses from the industry, the time limit on pledges to the voluntary outerwear code had been dropped and that the pact would become effective when 70% of the industry approved it, irrespective of how long it might take to obtain this total. This development was followed Aug. 3 by the news that the National Association of Hosiery Manufacturers had abandoned its efforts to have the hosiery industry sign the proposed agreement. The wool bundle group was the only hosiery division to give the required percentage of approval; the agreement therefore became effective Aug. 5 for that group alone.

Responses from full-fashioned knitters showed there was strong sympathy for the agreement in that division, though insufficient for the required majority. Generally responses indicated a prevalent desire to obey the mandates of the chief NRA provisions but a firm opposition to putting that sentiment on paper. In view of this, the national association now has asked all hosiery mills to sign a brief paper merely expressing approval and intention to conform to the provisions of the rejected agreement.

With hosiery and outerwear agreements both discounted, trade interest naturally centered on the agreement of the underwear industry which pact now is undergoing its final revision. It is understood that the agreement committee, of which T. H. Mueller, of Laros Textiles Co., is chairman, is engaged on checking up legal aspects. The agreement, it is stated, will focus on three main points; practicality, legality and enforceability.

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Bergman Elected Outerwear President

Ingram Bergman, secretary of Bergman Knitting Mills, Germantown, Pa., and one of the most active of the younger leaders in the outerwear industry was elected president of the National Knitted Outerwear Association, at a meeting of the board of directors in New York, last month. He succeeds August Egerer, of S. Augstein & Co., who served for two years. Mr. Bergman, a member of the association for many years, has held various offices including the posts of alternate on the Code Authority, and president of the Pennsylvania district of the National Association. His company, of which his father A. Bergman is president, is one of the oldest in the business. The new president is a keen student of industry-planning. In a subsequent statement Mr. Bergman stressed "collective action" as the key need of the industry.

The directors elected the following regional vice-presidents: A. J. Farber, of Friedman-Blau-Farber Co., Cleveland; D. F. Byrnes, Bradley Knitting Co., representing the Western area; A. Paul Cohen, Suffolk Knitting Mills, representing New England; Jack Finkelstein, of Elgin Knitting Mills, vice-president for the Eastern district; and H. L. Whiting, Olympia Knitting Mills, representing the Pacific Coast. Other vice-presidents elected were: Wm. Portner, Franklin Sweater Mills, Herbert Goulder, Federal Knitting Mills Co., and I. B. Davies, Bradley Knitting Co. Harold R. Lhowe and Sidney S. Korzenik were reelected executive director and secretary respectively.

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Ringless Trial Nov. 25

Trial of the suit instituted by Julius Kayser & Co., and the Textile Patents Corp., against Rosedale Knitting Co., Reading, Pa., for alleged violation of the Chas. A. Kaufman patent for ringless hosiery, will begin Nov. 25 in the U. S. District Court, Philadelphia. The trial is expected to have far-reaching effect both on related litigation and on the hosiery industry generally.

As approximately 70% of all full-fashioned hosiery now made is produced on machines equipped with three-carrier or ringless attachments, the trial is being awaited with keen interest by the industry. It is understood that about 65 mills will support the Rosedale Knitting Co. in its fight, while the Kayser-Textile Patents side has the support of about 120 mills. The two groups claim to represent about 6,000 machines each which would total about two-thirds of the industry's full-fashioned equipment.

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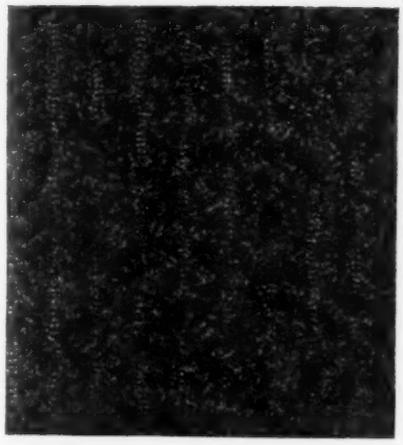
Hosiery Pact May Hold Status Quo

Talk of a possible hosiery strike on Sept. 1 when the present agreement expires, which was being heard even in responsible quarters early last month, gave way to a conciliatory mood at the end of July. The issue was the terms on which the hosiery agreement between the American Federation of Hosiery Workers and the Full-Fashioned Hosiery Manufacturers, should be renewed. The Federation of Hosiery Workers devoted most of July to its annual convention in Philadelphia and one of the major points stressed was the demand for the 30-hour week. At times during the convention radicals appeared to have the upper hand, but finally conservative opinion got control; just before concluding, the convention elected a new executive board which was empowered to begin negotiations at once with manufacturers looking to agreeing on a new contract.

While this executive board has a free hand for the most part, it was urged to seek increased wages for lower-paid knitters and to improve the condition of the semi-skilled. Indications were the board would not push too strongly for a 35-hour week but would be satisfied with a concession of a 38-hour week.

When the smoke cleared away at the end of July and negotiations had reopened between the manufacturers and the union, it appeared likely that an amicable solution would be reached, calling for little change in the present hours or wage scale.



Typical of the originality now going into knitted outerwear manufacture is this distinctive knitted cloaking or suiting fabric. It has a ribbed face of curled mohair, with Bemberg backing in contrasting shade. By French & Ward.

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Berkshire Planning Mill in South?

Reports that Berkshire Knitting Mills, Reading, Pa., had sent scouts to various southern States looking for a suitable site for a hosiery mill, were heard in the market at the end of July and received some credence. However, the home office at Reading, when questioned by TEXTILE WORLD dismissed the report as "merely a rumor." Trade factors were disposed to the belief that such a move was contemplated as a part solution of the wage differential problem, and that the company was denying it simply because the plans were not yet ripe.

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Hosiery Stocks Show Up Trend

A moderate rise in stocks, with production continuing somewhat above shipment, marked the hosiery industry in May as against April, according to figures issued by the National Association of Hosiery Manufacturers. Key figures by dozens follow:

	Output	Shipments	Stocks on hand end of month
May, 1935...	9,202,825	9,124,359	19,039,971
April 1935...	9,302,125	9,179,793	18,961,505

Key statistics issued by the Department of Commerce show little change in the two months:

	Output	Shipments	Stocks
May, 1935...	7,081,906	7,292,038	13,976,245
April, 1935...	7,057,674	7,281,195	13,986,571

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Underwear Status Mixed

The month of July brought mixed trade winds to the underwear industry. While the extremely hot weather served to prolong the call for summer-weight lines, the prevailing uncertainty as to the textile processing tax tended to check buying of the heavyweight ribbed lines for fall. Underwear mills complained that buyers were afraid to commit themselves until the tax matter had cleared up somewhat. The amount of tax on heavy cotton ribbed union suits is considerable, and its removal would substantially alter market price levels. Knitters of heavyweight lines reported that fall demand was sluggish at the end of July and they did not look for a quick pick-up unless some definite word came from Washington on the tax issue.

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Industry Briefs

Strike at Durham—Demanding restoration of wage cuts a number of employees, members of the American Federation of Hosiery Workers, went on strike July 23 at the Durham (N. C.) Hosiery Mills.

Analyzes Wagner Bill—With the aim of enlightening underwear manufaturers on the significance of the Wagner Labor Relations Bill, The Underwear Institute has directed its Industrial Counsellor, John D. Strain, to analyze the measure. The result of the analysis, together with authoritative legal and trade opinion, will be made available to underwear industry shortly.

Frank Words by Nusbaum—Ferdinand Nusbaum, of Nusbaum Knitters, believes that much of our present difficulty is due to legislative tinkering by individuals lacking sound knowledge of economics. In an interview in *"Knitted Outerwear Times,"* organ of the National Knitted Outerwear Association, this well known manufacturer caustically criticizes the "Santa Claus politicians and statisticians" who, he says, offer panaceas entirely out of line with fundamental economic precepts.

Here's a Cool One!—A float which showed real men and women diving into a pool of real water was the contribution of the Jantzen Knitting Mills of Canada, Ltd., to a Dominion Day parade at Vancouver, B. C., and — properly enough—this refreshing display carried off first prize.

Helpful Hints to Consumers—The outerwear industry keeps hard at the task of improving its position with the consumer. Tags giving simple but much-needed instructions on cleaning, folding and wearing knitwear are being prepared by the National Association and will be distributed to manufacturers who in turn will attach them to merchandise.

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Knit Financial Notes

Chester Knitting Mills. The St. Louis Mo. Union Trust Co. has been given court **permission to file a foreclosure against** Chester Knitting Mills there, hosiery-underwear manufacturers, for whom receivers were appointed in 1931.

Nick-A-Jack Hosiery Mills, Chattanooga, Tenn.—Clarence F. Sweets has been appointed trustee in bankruptcy.

Knitting Mill News

Champion Knitting Mills, Marietta, Ga., has installed approximately $5,000 worth of new machinery.

Bear Brand Hosiery Co., Gary, Ind., has installed H. W. conditioners for setting twist on silk.

Leicester Knitting Mills Corp, Rochdale, Mass., operating in a portion of the former local mill of the American Woolen Co., previously known as the Rochdale Mills, will carry out a modernization and remodeling program in the future, utilizing entire available floor space of about 150,000 sq.ft., for operations. At that time additional machinery will be installed to give employment to more than 750 workers. The plant specializes in the production of silk hosiery. George A. Gordon is manager.

Columbia Hosiery Mills, Inc., Brooklyn, N. Y., have been chartered with capital of $20,000, to operate a local mill. Alfred A. Eibschutz, 4711 Twelfth Ave., Brooklyn, is principal incorporator.

Hein's Knitting Mills, Inc., Queens Village, N. Y., have been formed with capital of 10 shares of stock, no par value, to operate a local mill. M. Hein, 575 Onderdonk Ave., Ridgewood, Brooklyn, N. Y., is the principal incorporator.

Harriman (Tenn.) **Hosiery Mills** is constructing a brick addition to house new machinery.

Supersilk Hosiery Mills, Ltd., London, Ont., is planning expansion at mill, including construction of a new dye house and installation of a throwing plant. Cost is e stimated over $75,000.

Hudson Silk Knitting Co., Inc., Charlotte, N. C., recently organized by M. E. Pierson, vice-president of Hudson Silk Hosiery Co., and associates, is completing construction of new mill in the Oakhurst district, on which work has been in progress for several months. A portion of the plant has been placed in service, averaging about 25% of proposed capacity, and other divisions will be started up soon. Plant will be given over to production of full-fashioned hosiery and will represent a gross investment of close to $300,000.

Snider Hosiery Mill, High Point, N. C., recently organized by W. H. Snider, Commercial National Bank Building, High Point, and associates, has leased a building on Grimes St., and will remodel and equip for a new hosiery mill.

Miller-Smith Hosiery Mills, Alton Park, Chattanooga, Tenn., are installing a new humidifying system, costing about $1,300.

TEXTILE WORLD'S

Processing Digest

RECENTLY we had submitted to us a number of fabrics which were said to be fireproof. One—an all-silk fabric—is naturally non-flammable, merely fusing when placed in a flame. Another, which has been treated with a water-soluble borax-boric acid compound, is flameproof before laundering, but loses this property upon washing. A third—an all-cotton fabric—is untreated and burns freely when exposed to a flame. Fabrics which supposedly are fireproof, in many instances will not decrease the fire hazard, but actually increase it. This condition is permitted largely by the fact that at present there are no definite, generally accepted standards for fireproof fabrics, no standard methods for determining the flammability of textiles or the permanency of fireproofing treatments.

Such standards are important—more important in our opinion than standards for dye fastness, shrinkage of textiles, or waterproofness of textiles.

There is urgent need for the formation of a joint committee of the technical associations connected with the industry to make an immediate start on the problem of developing and promulgating standards for fireproof fabrics.—*Editor.*

Analysis of Mixed Textiles

A new method of analyzing textiles containing a mixture of fibers has been developed in the laboratories of the National Bureau of Standards, Washington, D. C. The new method may be used for the analysis of textiles containing two or more of the following fibers: cellulose-acetate, regenerated-cellulose rayon, cotton, and wool.

The specimen to be analyzed is extracted with carbon tetrachloride to remove oils and fats; treated with a starch- and protein-hydrolyzing enzyme; and washed with water to remove starch size, casein, glue, gelatin, and loading material. Cellulose-acetate is removed from a mixture of fibers by solution in acetone; silk, by an aqueous solution of calcium thiocyanate of specific gravity 1.20; the regenerated-cellulose rayons, by a thiocyanate solution of specific gravity 1.36; and the residue of cotton and wool is treated with aluminum chloride and heat to remove cotton, or with potassium-hydroxide solution to remove wool. The results, expressed as percentages of each of the fibers in the specimen are accurate within 2% of the weight of the specimen, according to the Bureau.

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Silk Finishers Raise Prices 10-30%

After a long period of profitless business, silk and rayon dyers and finishers rebelled in the middle of July and started a price advance which extended steadily, until at the start of August most firms had revised their lists to conform to the new levels. The price increases ranged from 10% to 30%. Leading spokesmen for the industry said the rise served to reduce their losses, but was not yet adequate to yield a profit. Features of the advance are: all satin-face cloths now carry a flat rate of 11c. per yd. for all colors. Alpacas have a minimum price of 12c. Acetate and rayon crepes up to 33 lb. now carry a flat price of 9c. against 6 and 8c. formerly. While it was too early to get a complete trade reaction to the new levels, little resistance had been manifest up to the beginning of August. Business generally is no more than seasonally quiet and pure-silk dyers are in some areas quite active.

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Bisulphite Process for Printing Wool

A new method for printing wool is described by Dr. Ed. Justin-Mueller in a recent issue of the German edition of the Melliand Textileberichte. It has long been known that the dyeing properties of wool can be slightly improved by treating it with neutral sodium sulphite, but the process does not seem to have been applied to printing. Experiments have shown that the prints thereby produced are not only similar to those on chlorinated wool, but also that it is not necessary to moisten the goods before steaming at all, while the white is rather improved by steaming, instead of turning yellow. Before unchlorinated wool is printed by the bisulphite process, it is absolutely necessary first of all to test the material and the preliminary finish to which it has been subjected, which can be done by laying a small sample of the cloth upon the surface of a solution of 15 c.c. sodium bisulphite 35° Bé in 85 c.c. cold water. The sample must sink to the bottom of the vessel within from 30 to 50 sec. at the outside. Bisulphite printing colors are best prepared from a neutral stock color. Experience has shown that the addition of from 125 to 135 grams sodium bisulphite 35° Bé per kilogram printing color is most suitable. After printing, the goods are dried only very lightly, then steamed for 1 hour without pressure and without being moistened, and finally washed.

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Mexico Buys Finishing Equipment

Following other active buying of finishing equipment, Mexican interests last month bought from McCord, Inc., sufficient equipment from the American Printing Co., Fall River, Mass., to establish a spinning, weaving, and finishing plant. The equipment is being shipped to Vera Cruz. In addition to the 42 printing machines purchased by Pacific Mills, considerable finishing machinery has been disposed of to other plants both in this country and in South America.

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Wool Research

Results of an investigation to find a method for determining the action of various reagents on wool indicate that the iodine number of wool provides a measure of the extent to which the amino groups are affected by chemical treatment of the fiber. This research, which was reported by Milton Harris, Harvey A. Neville, and William C. Fritz, in the June issue of the U. S. Bureau of Standards, *Journal of Research*, has disclosed that the iodine method will distinguish, for example, between reversibly adsorbed and chemically combined acid. The following table gives the iodine numbers of raw wool and wool tested with various chemicals:

Treatment	Iodine No.
Raw Wool	14.2
Overscoured, 1% soda ash	14.2
Formaldehyde, 1%	5.9
Neutral H_2O_2, 1%	14.1
NH_2SO_4	7.2
Acid H_2O_2 1%	7.2
NH_2SO_4 followed by Na_2CO_3	14.2
Ammoniacal H_2O_2, 1%	4.3
H_2O_2, 1% and Na_2CO_3, 0.5%	5.3
Acid $KMnO_4$, 1%	1.5
HNO_2, 0.1%	4.7

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New Color Cards

The 1935 fall color cards for silk and wool fabrics are announced by the Textile Color Card Association, New York. The silk card comprises 56 colors, the outstanding groups being the "Crushed Pastels" and "Arabian Nights." The wool card totals 48 colors, of which "Rustiques," "Touchdown," and "Ski" colors are the highlights.

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Delustering Agent

A new textile delusterant has recently been placed on the market by E. I. duPont de Nemours & Co., Wilmington, Del. The compound, known as Neotone T is designed particularly for application to rayon, but is said to be

equally satisfactory on silk, cotton, and acetate materials. It is stated that Neotone T produces a wash-fast and dry-cleaning-fast dull finish, which is so firmly attached to the fiber that it does not rub off or dust out when the fabric is torn and which will withstand at least five or more washings in 0.5% soap at 120° F.

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Association Notes

Pleasure and Business—The second annual joint sectional outing of the American Association of Textile Chemists & Colorists was held Aug. 3 at Signal Mountain Hotel near Chattanooga, Tenn. Technical papers were presented on "Bacterial Effects on Cellulose," on "Staining of Cottons," and on "Effects of Heat, Moisture and Perspiration." A full program of athletic and social events was enjoyed.

The annual meeting will be held in Chattanooga, Tenn., on Friday and Saturday, Dec. 6 and 7, with headquarters at the Read House. Harold Schroeder, chairman of the south central section, announces appointment of the following committees with chairmen as indicated: Railroad and Transportation—John L. Dabbs, Jr., E. I. duPont deNemours & Co., Inc.; Scenic Outings—Harry H. Morrison, Permutit Co.; Textile Ball—A. Henry Gaede, Laurel Soap Manufacturing Co.; Entertainment, Publicity and General Arrangements—William J. Kelly, Jr., Burkart-Schier Chemical Co.; Ladies—Mrs. Harold Schroeder; Reception—Walter E. Hadley, Standard-Coosa-Thatcher Co.; Registration—Herbert A. Rodgers, National Aniline & Chemical Co. Carl Z. Draves, who served as chairman of the technical program committee for the last annual meeting, has again been appointed to this position by President Robert E. Rose.

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Industry Briefs

Off to Sanforize Europe! — Miss Marian Stephenson sailed recently for Europe where she will visit various countries with a view to aiding the Sanforizing division of Cluett Peabody & Co. in its development of European markets. She will give special attention to shrinkage control in fine cottons, linens, and spun rayons.

Fusing by the Yard—That the real future of the fused collar would be assured only development of methods to process the fabric in yardage thus removing the fusing problem from the shoulders of the shirt manufacturer, is the comment this month of a leading factor in the shirt field.

Velvets that Won't Crush—A new line of transparent velvets, said to be crush-resistant, have been placed on the market in New York. The crush-resistant finish is proof against dry-cleaning, it is claimed. The fabrics sell at $1.85 and thereabout, while standard velvets sell at $1.05 to $1.15.

U. S. Finishing Report—With plans under way for reorganization, the U. S. Finishing Co. May 1 issued its report for the year ending Dec. 31, 1934. The report showed a net loss of $724,470 against a net loss of $369,586 in the previous year. L. S. Little, president, in his statement, said the reorganization plans and the RFC loan advance will be ready by June 1. Existing trade conditions were blamed for the 1934 showing.

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New Dyes

E. I. du Pont de Nemours & Co. has announced the following new products:

Pontamine Fast Orange 6R, a direct dye yielding reddish shades of orange on cotton and rayon and finding its chief use as a speck dye and for union dyeing; Sulfogene Brilliant Blue 5G, a sulphur dye giving bright greenish blue shades and suitable for application in closed - type circulating machines; "Acele" Orange 3R powder and Acele Red CR powder, two dyes for cellulose acetate yarns and piece-goods and particularly useful in the production of dark browns in combination with Celanthrene Brilliant Blue Double powder; and Sulfogene Carbon 2BCF Grains, a sulphur color producing bluish shades of black on cotton and rayon.

General Dyestuff Corp. announces the following new products:

Indanthren Brilliant Green 4G, a vat dye suitable for dyeing and printing bright yellowish green shades, Fastusol Violet 2BA and Fastusol Red L5B, two direct dyes of the fast-to-light range; Algosol Blue 1BC, paste, an Algosol dye for dyeing and printing, and yielding clear blue shades of excellent fastness to light; and Indo Carbon 1B Suprafix, a special type of Indo Carbon color yielding a deep bluish black shade when printed on cotton or rayon.

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Processing Financial Notes

New Bedford (Mass.) Dyeing & Finishing Co. equipment was sold at auction July 21 for $33,775. Buyer said his principal might operate the property.

Arnold Print Works, North Adams, Mass., is planning a change in financial structure which it is said will place the company in a better competitive position.

United Piece Dye Works, Lodi, N. J., is to receive a loan of $3,750,000 from the RFC according to authorization recently issued. Mortgages securing the loan have been filed. It is a provision of the contract that no employee or official receiving more than $2,400 per year may get a raise in pay until the loan is retired.

Clemens Dyeing & Printing Co., Paterson, N. J., has been incorporated by Michael Clemens, head of the Clemens Piece Dye Works, Teaneck, N. J., and associates, with capital of $125,000. New company will take over and operate the mill of the Strengs Piece Dye Works, Inc., 25 Jane St., Paterson, recently purchased by Mr. Clemens at a receiver's sale for a consideration of $181,500. Operations under the new ownership will begin at once.

Cretona Print & Dye Works, Paterson, N. J., has been mortgaged to the extent of $450,000 to secure an RFC loan.

Supreme Piece Dye Works, Paterson, N. J., is seeking reorganization under Section 77B.

Textile Warping Corp., Paterson, N. J., will be liquidated at early date, in accordance with terms of will of Samuel Landow, president, who died on July 5.

Vogue Dyeing & Finishing Co., Paterson, N. J., has filed application for permission to reorganize under the new section of the Federal Bankruptcy Law.

Southern Bleachery and **Piedmont Print Works** stockholders met on Aug. 2 at Taylors, S. C., to consider merger of the two closely related firms as the **Southern Bleachery & Print Works.**

U. S. Finishing Co. and **Queen Dyeing Co.,** Providence, R. I., have been discharged from 77B proceedings by the court. The RFC has advanced $1,100,000 on June 3 and the discharge is recorded as of June 1.

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Processing Plant News

Hosiery Processing Co., Rossville, Ga., newly organized, has started operations in the plant formerly occupied by Park Woolen Mills.

Blum Screen Print Works, Inc., Brooklyn, N. Y., have been incorporated with capital of $20,000, to operate a local textile print works. New company is headed by Herman Blum, 220 East Eighteenth St., and Louis J. Blum, 708 Ocean Ave., both Brooklyn.

Moon Piece Dyeing & Finishing Corp., Fulton, N. Y., recently organized by Benjamin and Herman Markowitz, officials of Olympic Silk Mills, West First St., Fulton, has plans for new one-story mill on adjoining site on West First St., 108x123 ft. Company will remove a present dye works at Paterson, N. J., operated by Olympic company, to Fulton, with installation of additional equipment for larger capacity. New mill will cost close to $100,000, with machinery.

North Carolina Finishing Co., Yadkin, N. C., is constructing a new one-story addition.

Rock Hill (S. C.) **Printing & Finishing Co.** is erecting a new one-story addition.

Tucapau (S. C.) **Mills** have resumed operations in bleachery division, following a shut-down for the last five months.

TEXTILE WORLD'S

Engineering Digest

AS WE have pointed out before, one of the subjects which is certain to engage the attention of textile engineers in the near future is the problem of purification and disposal of objectionable manufacturing wastes. Legislation now being sought to extend the present Federal control of navigable rivers to include all tributaries of such rivers may result in the forced treatment of textile wastes. Even in the event that strict Federal control is not effected immediately, the fact still remains that States and municipalities are becoming more insistent that industrial plants cooperate in minimizing stream pollution.

The survey of textile waste treatment now being conducted under a grant from the Textile Foundation is, therefore, extremely timely and deserves the whole-hearted support of the industry. The report of the survey, which will include a description of the methods now being followed by various mills in treatment of trade waste, undoubtedly will prove of value to the engineer in selecting the system best adapted for use in his own plant. On the other hand, conditions are not exactly the same in any two mills, and the individual engineer will do well to give careful and independent study to the problem to determine the most economical method or combination of methods which will give satisfactory results with the particular types of waste with which he may be called upon to deal.—*Editor.*

Calculating Steam Flow

A useful bit of information in connection with the use of steam is the relation that exists between the flow and the pressure drop. This relation is as the square root of the pressure drop and is used to estimate the rate of steam flow. By noting the difference in pressure between the boiler gage and the gage in the engine room, or any other point, the steam flow can be determined.

It must be noted, however, that there are certain limitations to the use of this method.

If at any particular time the rate of steam flow is known and at the same time the pressure difference is noted, the steam flow at any other time can be estimated on the basis of the square root of the loss of pressure. For example, if the steam flow is 100,000 lb. per hour when the pressure difference is 16 lb., then, if the pressure difference is 4 lb., the steam flow will be 50,000 lb. per hour.

This method of determination, though not very accurate, is quite satisfactory for checking purposes and for rough estimates, but can be used only when the relation between the actual steam flow and pressure drop has first been established. When this relation is not available, the determination of the steam flow can be made from the following table which has been worked out from Babcock's formula. The steam flow is determined by multiplying the combined product of the diameter factor, volume factor and pressure drop factor by 1,000 and the result is in pounds per minute. This method is much simpler than applying Babcock's formula direct, and is accurate enough for practical purposes.

Diameter		Volume		Pressure Drop/ 100 ft.	
Inches	Factor	Cu. ft./ lb.	Factor	Lbs./sq. in.	Factor
4	.08	.5	2.80	.25	.60
6	.22	2.0	1.40	1.00	1.20
8	.55	4.0	1.00	2.00	1.65
10	1.00	10.0	.60	4.00	2.40
14	2.40	20.0	.45	6.00	2.90
20	6.10	30.0	.35	10.00	3.75

Intermediate values can be determined by interpolation or a curve can be drawn. The pressure drop is for straight-run pipe and for accurate results proper allowance must be made for bends, valves, etc., information for which can be obtained from handbooks. For rough estimates, 50 ft. may be allowed for each bend or globe valve for a 10-in line, proportionately higher for larger diameters and proportionately lower for smaller diameters.

Example. An 8-in. line delivers saturated steam. The distance from the boiler room, where the pressure is 150 lb. to the engine room, where the pressure is 140 lb., is about 100 ft., with one short bend, one long bend, and a globe valve in between. What is the steam flow? The equivalent distance is approximately 200 ft. and the pressure drop, therefore, 5 lb. per 100 ft. From steam tables, the volume is 3 and the volume factor from the above table is 1.20. The diameter factor is .55 and the pressure drop factor 2.65. The flow is 120 x .55 x 2.65 x 1,000 = 1,740 lb. per min.

N. T. Pef.

What Do You Know About Waste Disposal?

What is the character of the different kinds of liquid waste produced by textile mills? What is the most economical way to treat and dispose of these wastes without damaging streams or sewage-disposal plants? Is economical recovery of waste products possible? What are the possibilities of reducing waste within the mill? What are the laws concerning stream pollution at present and what is in prospect in this respect?——These are some of the questions that the Textile Foundation and the School of Engineering at the University of North Carolina propose to answer.

For the last few years work has been carried on at the university and recently the board of directors of the Textile Foundation voted that, before continuing research work, a complete survey of waste treatment in all branches of the textile industry be made, both here and abroad, so that there would be no duplication. When the survey has been completed, the Textile Foundation will publish a report summarizing present-day knowledge of the subject in a manner that will be useful to manufacturers, engineers and research students. Anyone having any information or ideas on the subject of waste disposal is invited to communicate with John Geyer, Box 432, Chapel Hill, N. C.

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Screen For Oil

An oil strainer as commonly made consists of a perforated pipe covered with a fine-mesh wire cloth. The perforated pipe gives the strainer the necessary rigidity to resist collapse, and the wire cloth keeps out the undesirable solids, lumps, dirt, etc.

An engineer friend of mine decided that the perforated pipe would be unnecessary provided he could find a wire cloth of sufficient stiffness to serve the purpose alone. He secured a rugged, durable, fine-mesh, Monel-metal wire cloth and succeeded in making a strainer superior to the old-fashioned type. Monel metal solders readily, can be fastened into place easily and securely, and is cleaned quickly. A perforated pipe not only retards flow, but costs additional money. In addition, the total open area through which the oil can flow is much greater without the perforated pipe than with it. For high pressures, a slotted pipe is advisable.

My friend tells me that the idea makes a hit with everybody who sees it.

F. W. S.

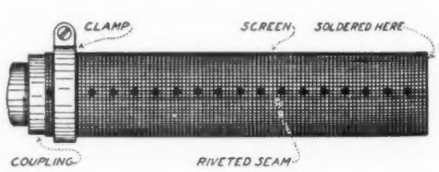


Fig. 1. For ordinary use.

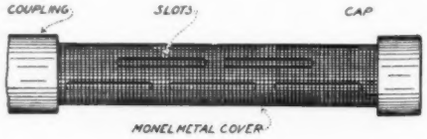
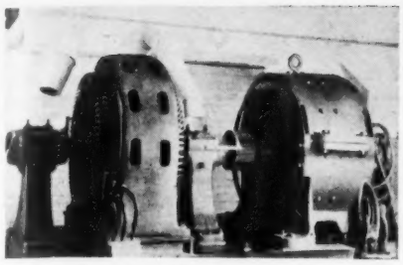


Fig. 2. For high pressure a slotted pipe is advisable.



The air-dust set-up which successfully cooled bearings

Air Cooled Bearings On Motor-Generator

The bearings on a 300-kw. synchronous motor-generator, installed at the Dover, N. J., plant of the Gotham Silk Hosiery Co., and used to supply direct current for the variable-speed knitting-machine motors, were found to be running hotter than seemed advisable, although not hot enough to justify an expensive method of cooling.

The illustration shows how cooling is now accomplished by blowing cold air on the bearings. There is a long duct along the wall back of the motor-generator set, with three pipes leading out to the bearings. A small blower is installed in the cellar on the other side of the wall, where the air is always cool. The blower used is one that the company had on hand in one of its plants, and, as the sheet-metal ducts were not a large item, the whole job cost slightly under $50.

FRANCIS A. WESTBROOK.

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York Mfg. Co. Modernizes Generator Drive

Another example of the benefits to be derived from a modern drive is the installation at the York Mfg. Co., Saco, Me. The company develops a substantial amount of power from water wheels, both mechanically and through the driving of a 540-kw. generator. At one time a McIntosh & Seymour steam engine was also hooked up to drive the generator.

The old drive from the water wheels was by means of four, 28½-in., belt drives, through countershafts, and the generator was located about 65 ft. from the wheels. Due to the arrangement, there was undue slippage and excessive maintenance costs.

Under the new set-up, the company moved the generator as close as possible to the wheels, according to the *Link-Belt News*, and installed a silent-chain drive capable of transmitting 800 hp. The new drive is fully encased for automatic lubrication and has shown substantial savings.

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Symposium Held on Paint And Paint Products

A feature of one of the regional meetings of the American Society for Testing Materials was a symposium on paint and paint products. Fifteen papers were read. Among the subjects covered were the following: specifications; protective coatings; testing; drying oils; zinc, lead, and titanium pigments; colors; resins; lacquer solvents and volatile thinners; turpentine and petroleum distillates. The papers have been published and can be secured from A.S.T.M., 260 S. Broad St., Philadelphia, for $1.25.

ENGINEERING IN THIS ISSUE

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Some Notes and New Products

"Self-Vulc," rubber in liquid or plastic form, has been improved by the Self-Vulcanizing Rubber Co. through the development of a new priming coat. The product is used to protect inside and outside surfaces against abrasion, corrosion, and acids. Good results can now be obtained by the use of a single priming coat; and both the priming coat and the liquid rubber can be brushed on like paint, sprayed on, dipped on, or poured on. The rubber vulcanizes itself when exposed to the air. "Self-Vulc" plastic is applied with a spatula or other flat tool. Like the liquid, it requires only one priming coat and vulcanizes itself cold when exposed to the air.

Air conditioning takes its place with heating and ventilating at the fourth International Heating and Ventilating Exposition, which will be held at the new International Amphitheatre in Chicago, Jan. 27 to 31. Thus summer, as well as winter, gets attention from the "comfort" engineers.

The Mississippi River would take a long time to heat on an electric range, but the General Electric Co. is building giant Calrod-type heating units to warm at least part of it at a dam, near Canton, Mo., that the government is building. The main gates of the dam will consist of huge rollers or drums, some of them 109 ft. long and 20 ft. in diameter, placed horizontally across the stream. Each drum can be partially rotated and raised to vary the flow of water, or permit the passage of ice, and the layout represents the latest developments. To insure year-round operation, the ends of the drums must be kept from freezing, so the heating units are to be installed. Despite the giant size of the units (some are 27 ft. long) only 18 kw. will be required to heat one end of a roller sufficiently so as to prevent freezing of the drums.

Engineering Mill News

Southern-Brighton Mills, Shannon, Ga., has awarded contract for construction of an 85x75 ft., two-story community building.

Pelzer (S. C.) **Mfg. Co.** is planning installation of a new water supply system and sewerage system for its mill village, estimated to cost about $250,000. Financing will be arranged through Federal aid.

Winnsboro (S. C.) **Mills** are having certain mill buildings re-roofed at a cost of $8,000.

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Engineering Trade News

Combustion Engineering Co., Industrial Stoker Division, New York, has appointed Theodore H. Ross as district sales manager for Pittsburgh.

Moccasin Bushing Co., Chattanooga, Tenn., oil-distributing bushings and castings, has appointed Paul W. Marceau as general manager.

Carolina Specialty Co., Charlotte, N. C., is now representing Sholes, Inc., New York and Orange, N. J.

General Electric Co. received orders amounting to $104,542,946 for the first six months of this year, an increase of 13% over last year. Sales billed amounted to $94,546,273, an increase of 17%. Profit for the six-month period was $11,541,428. compared with $8,175,557.

Babcock & Wilcox Co., New York, moved the offices of its various divisions formerly at 130 Cedar St. to 19 Rector St. The general office of the company will continue at 85 Liberty St.

Reliance Electric & Engineering Co., Cleveland, Ohio, has elected J. W. Corey, sales manager and S. B. Taylor, the works manager, to the board of directors.

Gale Engineering Co., New York, has been appointed representative for the Combustion Control Division of A. W. Cash Co., Decatur, Ill.

ADVERTISING PAGES REMOVED

QUOTATIONS

At close of business, Aug. 1, 1935

Prices cover average qualities unless otherwise stated

Cotton Goods

	Aug. 1	July 1	1934 Aug. 1
PRINT CLOTH			
27 -in., 64x60, 7.60	5	5	4¾
38½-in., 64x60, 5.35	5¼	6	6¼
39 -in., 68x72, 4.75	6¼	7	7¼
39 -in., 72x76, 4.25	8	8¼	8½
39 -in., 80x80, 4.00	8½	8¾	9
BROWN SHEETINGS			
36-in., 56x60, 4.00	7½	7½	7¼
36-in., 48x48, 5.00	5½	5¾	6½
37-in., 48x48, 4.00	6¼	7	7¼
MISCELLANEOUS			
Drills, 37-in., 3 yd	8¼	9	9¾
Denims, 2.20	14	14½	15½
Tickings, 8 oz.	17½	17¾	18½
Standard prints	7	7	7¼

Tax included.

Cotton Waste

Peeler comber	14.00
Peeler strip	14.25
White spooler (single)	7.50
Linters (Mill Run Average)	6.00

Cotton Prices

Spot Cotton at:	Aug. 1	July 1	For Month High	For Month Low	1934 Aug. 1
New York	12.00	12.15	12.45	12.00	13.20
New Orleans	11.95	12.20	12.45	11.90	13.08
Liverpool	6.76	6.86	7.02	6.75	7.04

FLUCTUATIONS OF FUTURES

	Closed Aug. 1	For Month High	For Month Low	Closed July 1	Net Change
Aug.	11.37	12.01	11.31	11.72	—0.35
Sept.	11.42	11.90	11.38	11.61	—0.19
Oct.	11.4	11.78	11.46	11.50	—0.02
Nov.	11.41	11.76	11.41	11.49	—0.08
Dec.	11.34	11.74	11.36	11.49	—0.15
Jan.	11.29	11.76	11.34	11.50	—0.21
Feb.	11.27	11.79	11.30	11.50	—0.23
Mar.	11.25	11.82	11.26	11.51	—0.26
April	11.24	11.84	11.24	11.51	—0.27

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

F.o.b. New England

	Middling	St. Middling
1-in.	14.48	15.23
1 1/16-in.	15.48	16.23
1 1/8-in.	18.48	19.98

Based on Oct. 11.48

FOREIGN COTTONS

Alexandria Exchange, Aug. 1	
November, Sak	14.54
August Uppers	13.01
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak	24.00
Medium Uppers	24.25
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	10.00
China Tientsin No. 1	13.50

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Cotton waste prices also include the processing tax but of course the prices on various raw cottons do not include it.

Cotton Yarn

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.27	22s	$0.30
10s	.27½	24s	.32
12s	.28	26s	.33
16s	.29	30s	.35

TWO-PLY SKEINS AND TUBES

8s-2	$0.27½	20s-2	$0.37½
10s-2	.28	24s-2	.32½
14s-2	.29	30s-2	.35½
16s-2	.29½	40s-2	.41½

SINGLE WARPS

12s	$0.28	22s	$0.30½
14s	.29	24s	.32½
16s	.29½	30s	.35½

TWO-PLY WARPS

8s-2	$0.28	20s-2	$0.31
10s-2	.28½	24s-2	.33
14s-2	.29½	30s-2	.36
16s-2	.30	40s-2 ordin.	.42

HOSIERY CONES (Frame Spun)

8s	$0.26½	18s	$0.29½
12s	.27	20s	.30
12s	.27½	22s	.31
14s	.28	24s	.32
16s	.28½	26s	.33

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.35½	50s-2	$0.49
30s-2	.39½	60s-2	.55
40s-2	.44	80s-2	.74

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.36	50s-2	$0.50
30s-2	.40	60s-2	.56
36s-2	.43	70s-2	.66
40s-2	.45	80s-2	.76

SINGLES

14s	$0.33½	38s	$0.44
20s	.35½	40s	.45
28s	.39	50s	.49
30s	.40	60s	.55

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.52	60s-2	$0.70
40s-2	.57	80s-2	.96

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	1.76	1.61	1.60
Grand XX, 83%	1.68	1.58	1.57
Special Crack, 81%	1.62	1.56	1.56
Crack XX, 78%	1.57	1.54	1.54
Extra, Extra, 73%	1.55	1.52	1.52
Best, Extra, 68%	1.53	....	....

RAW SILK EXCHANGE

	Aug. 1	July 1	For Month High	For Month Low	Net Change
Aug.	1.45	1.31½	1.44	1.31½	+0.13½
Sept.	1.44	1.31½	1.44	1.31½	+0.12½
Oct.	1.42½	1.31½	1.43	1.31½	+0.11
Nov.	1.42½	1.31½	1.43	1.31½	+0.11
Dec.	1.42½	1.32	1.43	1.32	+0.10½
Jan.	1.43	1.32	1.43	1.32	+0.11
Feb.	1.43	1.32	1.43	1.32	+0.11

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.42½
Hosiery tram, 5thd. crack XX, 78%	2.17½
60/2 spun silk	2.75

RAYON WASTE

Thread (for garnetting)	$0.14–$0.16

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.30–$0.31	¾ blood	$0.31–$0.32
Fine clthg	.23– .25	½ blood	.30– .31
¼ blood	.30– .31		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.70–$0.73
California, Northern	.61– .63

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.75–$0.77
Staple ½ bld	.71– .72
Fine and fine medium (original bag)	.66– .68
¾ blood	.61– .63
½ blood	.57– .58

EASTERN SCOURED PULLINGS

A.A	$0.75–$0.78	B-Super	$0.65–$0.70
A-Super	.71– .73	C-Super	.60– .62

CARPET WOOL (Nominal)

Aleppo (clean)	$0.24–$0.28
Sining	.13– .14
China filling (clean)	.09– .14

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.93–$0.95
Half-blood (60-62s)	.89– .90
Aver. ¾ blood (56s)	.78– .80
½ blood (50s)	.68– .72

NEW YORK TOP FUTURES

	Closed Aug. 1	For Month High	For Month Low	Closed July 1
Aug.	82.3	84.0	82.2	84.0
Sept.	82.5	84.5	82.4	84.5
Oct.	82.9	85.0	82.6	85.0
Nov.	82.9	85.0	82.8	85.0
Dec.	83.0	85.0	83.0	85.0

TOPS—BRADFORD ENG. Aug. 1

Fine (64s)	31d	¾ bld. (56s)	20½d
½ bld. (60s)	29d	½ bld. (50s)	15½d

NOILS—BOSTON

Fine	$0.54–$0.56	¾ bld.	$0.46–$0.48
Half bld.	.50– .52	½ bld.	.42– .43

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$1.00 –$1.05	2-36s 58s	$1.30 –$1.35
2-30s 46s	1.05 – 1.10	2-40s 60s	1.35 – 1.40
2-30s mixes	1.40 – 1.45	2-50s 64s	1.47½– 1.50

ENGLISH SYSTEM KNITTING

2-20s 44s	$0.90 –$0.95	2-20s 60s	$1.10 –$1.15
2-20s 50s	0.95 – 1.00	2-20s 64s	1.20 – 1.25

FRENCH SYSTEM

1-26s 64s	$1.15 –$1.20	2-40s 64s	
1-30s 64s		Zephyrs	$1.42½–$1.45
warp	1.32½– 1.35	2-50s 66s	1.60 – 1.65

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.07	150	24–40	$0.57
75	30	.87	150	60	.59
100	40	.76	300	44	.48
125	36	.65			

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.10	100	$0.77½
55–65	1.05	120–125	.68– .73
75	.90	150	.60

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.40	100	75	$0.79
75	60	.90	150	112	.60